Seventh Annual Report

Illinois State Bee-Keepers' Association

1907

THE UNIVERSITY

OF ILLINOIS

LIBRARY

SEVENTH ANNUAL REPORT

—OF THE—

Illinois State Bee-Keepers' Association

Organized Feb. 26, 1891.

—AT—

SPRINGFIELD, ILL.

COMPILED BY
JAMES A. STONE, SECRETARY.
R. R. 4, Springfield, Ill.

Springfield, Ill.
Illinois State Register Print,
1908.

ILLINOIS STATE CAPITOL BUILDING AT SPRINGFIELD.

LETTER OF TRANSMITTAL.

OFFICE OF THE SECRETARY,
R. R. 4, SPRINGFIELD, ILL., March 1, 1908.

To his Excellency, Charles S. Deneen, Governor of the State of Illinois:

SIR: I have the honor to transmit herewith the Seventh Annual Report of the Illinois State Bee-Keepers' Association.

Respectfully submitted,

JAMES A. STONE, *Secretary.*

OFFICERS AND MEMBERS

——OF THE——

ILLINOIS STATE BEE-KEEPERS' ASSOCIATION

FOR 1908

OFFICERS

J. Q. SMITH, ... President
And State Foul Brood Inspector, Lincoln.

VICE-PRESIDENTS

1st—GEO. W. CAVE, ... Kirkwood
2nd—W. H. HYDE, ... New Canton
2rd—A. L. KILDOW, ... Putnam
4th—S. N. BLACK, ... Clayton
5th—C. P. DADANT, ... Hamilton
JAMES A. STONE, ... Secretary
CHAS. BECKER, ... Treasurer
Pleasant Plains.

LIST OF MEMBERS

——OF THE——

Illinois State Bee-Keepers' Association

FOR 1908

(Where no State is given "Illinois" is understood.)

NAME AND ADDRESS.	No. of Colonies.	Pounds of Comb Honey in 1907.....	Pounds of Extracted Honey in 1907.....	Increase.....
Almond Bros.—Libertyville	10	200	.....	..
Andrews, T. P.—Farina	...	....	.....	..
Arnd, H. M.—1913 Superior st., Chicago	...	....	.....	..
Augenstein, A. A.—R. 1, Dakota	...	....	.....	..
Bagley, Miss Pet—Putnam	...	....	.....	..
Baldridge, M. M.—St. Charles	...	....	.....	..
Baxter, E. J.—Nauvoo	...	....	.....	..
Becker, Chas.—Pleasant Plains	39	....	600	13
Benjamin, W. W.—Box 76, Metropolis	16	....	.....	..
Bercaw, Geo. W.—Eltoro, Orange Co., Calif	...	....	.....	..
Bevier, M.—Bradford	49	500	100	..
Black, S. N.—Clayton	12	200	.....	..
Bolt, R.—R. 3, Fulton	20	1600	200	..
Cameron, L. A.—Bloomington, Texas	...	....	.....	..
Campbell, Jno. F.—5 Wabash ave., Chicago	...	....	.....	..
Cave, Geo. W.—Kirkwood	138	1200	300	38
Chezeno, R. W.—7409 Vincennes Rd., Chicago	...	....	.....	..
Cooke, A. N. & Son—Woodhull	39	1300	300	..
Coppin, Aaron and wife—Wenona	...	....	.....	..
Crim, S. F.—Dawson	...	....	.....	..
Crotzer, A. S.—Lena	40	900	75	..
Croxley, E. G.—Farina	...	....	.....	..
Cunningham, J. C.—Box 119, Streator	12	222	.....	..
Dadant, C. P.—Hamilton	...	....	.....	..
Deem, B. L.—Colona	28	400	700	..
Diebold, A. J.—Seneca	25	340	396	..
Dollinger, Henry—R. 1, Lockport	45	400	200	..
Drorak, John, Jr.—Algonquin	40	1060	300	..
Duby, H. S.—St. Anne	...	....	.....	..
Durflinger, Orville S.—Box 21, Henry	...	....	.....	..
Earle, C. A.—Des Plaines	7	140	.....	..
Earnest, David P.—R. 1, East Alton	28	250	160	3
Eenigenburg, J.—Oakglen	44	600	1100	..
Emmons, A. I.—Greenfield	...	....	.....	..
Eve, George—Minonk	...	....	.....	..
Finger, C. A.—Marissa	29	....	850	..

NAME AND ADDRESS.	No. of Colonies.	Pounds of Comb Honey in 1907.....	Pounds of Extracted Honey in 1907.....	Increase.....
Flanagan, E. T.—Belleville	75	100	600	..
Frank, J. C.—R. 1, Davis	170	....	5000	..
Frank, John C.—R. 2, Box 65, Lyons, Kans	...	....	.....	..
Gamash, Jas.—1103 Washington st., Waukegan	25	350	.....	..
Geier, Herman—R. 1, Morton	11	330	.....	..
Glasser, Wm.—Box 43, Dakota	20	500	.....	..
Glessner, Mrs. J. J.—1800 Prairie ave., Chicago	...	....	.....	..
Grant, W. W.—Marion	...	....	.....	..
Gremers, L. H.—East Dubuque	...	....	.....	..
Group, John F.—Franklin Grove	13	600	.....	..
Grundy, W. C.—Ritchey	15	1500	.....	..
Halloran, Thos. F.—Reddick	...	....	.....	..
Hansel, Charlie—Minooka	8	100	.....	..
Heins, Herman—R. 2, Edwardsville	16	150	.....	..
Heise, Paul—Warsaw	...	....	.....	..
Hettel, Mathias—Marine	103	550	650	..
Hill, H. D.—Lima	...	....	.....	..
Hinderer, Frank—Frederick	34	1900	.....	12
Holdewer, J. D.—Carlyle	73	1600	350	..
Hutt, Joseph G.—1710 S. Washington St., Peoria	1	38	.....	..
Hyde, W. H.—New Canton	325	3750	6000	75
Johnson, J. P.—Box 61, Elburn	3	120	.....	..
Jones, M. A.—Atwater	20	500	180	..
Kelsey, W. T.—St. Francisville	9	250	.....	..
Kendall, Frank P.—Lock Box 35, Byron	11	675	400	..
Kennedy, Miss L. C.—R. 11, Curran	60	1200	.....	..
Kildow, A. L.—Putnam	165	2000	350	..
Kuczynski, Jno. F.—Oglesby	17	750	150	..
Kurr, J. F.—Louisville	35	500	.....	..
Lavalles, Maurice—Fulton	...	....	.....	..
Lawrence, W. G.—Fulton	148	7000	100	..
Laxton, J. G.—Lyndon	100	....	12000	..
Lind, M. H.—Baders	100	200	.....	..
May, Fred H.—Meredosia	105	240	350	..
Meise, F. A.—Coatsburg	55	75	500	..
Miller, W. C.—Box R., Ottawa	30	800	.....	..
Mindlow, John—86 S. Ashland Ave., River Forest	3	....	.....	..
Moore, W. B.—Altona	42	400	100	..
Mottaz, A.—Utica	60	2000	2500	..
Muchleip, H.—Apple River	...	....	.....	..
Mullin, O. S.—1129 14½ St. Rock Island. (Just started.)	10	....	.....	..
Mundoff, C. H.—Kirkwood	7	400	.....	..
McCullough, Jno. T.—Centralia	10	300	.....	..
McLeod, D. C.—704 E. 2d St., Pana	60	1000	200	..
Ness, L. L.—Morris	125	6000	.....	..
Newcomer, Sam M.—R. 2, Polo	65	1200	1500	..
Norberg, Peter J.—Spring Valley	170	200	8000	..
Null, Wm. D.—Prairieville, Hall County, Ala	...	....	.....	..
Nydegger, John—Danville	70	2000	.....	..
Ostermeier, John—Cornland	...	....	.....	..
Paul, W. H.—R. 2, Edwardsville	3	70	.....	..
Payne, John W.—R. 1, Georgetown	12	....	400	..
Phoenix, A. B.—Ava	94	500	.....	..

NAME AND ADDRESS.	No. of Colonies.	Pounds of Comb Honey in 1907.	Pounds of Extracted Honey in 1907.	Increase.
Pickels, M. A.—Lomax	45	500	.....	..
Poindexter, Jas.—Bloomington	45	250	160	5
Riley, W.—Breeds	...	....	.....	..
Rolf, Wm.—Hoyleton	9	....	256	..
Runland, Peter—Box 471, Spring Valley	45	1300	.....	..
Sauer, G. L.—Polo	65	2000	.....	..
Sauer, John—R. 5, Springfield	5	450	.....	12
Schatteman, Chas.—Atkinson	...	....	.....	..
Scroggins, A. C.—R. 3, Mt. Pulaski	...	....	.....	..
Secor, W. G.—Greenfield	...	....	.....	..
Seibold, Jacob—Homer	7	75	.....	..
Simpson, Wm.—Meyer	...	....	.....	..
Slack, Geo. B.—Mapleton	36	500	100	..
Smith, J. Q.—Lincoln	24	600	400	7
Southwick, Dr. Geo. E.—R. 23, Glenarm	80	1000	.....	..
Spracklen, A. W.—Cowden	72	280	300	..
Stone, Jas. A.—R. 4, Springfield	40	300	1000	5
Toth, John—Bartonville Sta., Peoria	4	110	12	..
Tyler, Fred—San Jose	13	200	.....	..
Ulrich, G. E.—Campus	14	200	.....	..
Vogel, Henry—Galena	50	1800	300	..
Wachter, Martin—Hinsdale	22	150	.....	..
Walker, Albert—Petersburg	25	200	190	..
Werner, Louis—Edwardsville	140	2000	500	20
Whitmore, Dr. N. P.—Gardner	9	280	.....	..
Widicus, Daniel—St. Jacob	...	....	.....	..
Yoos, Geo. F.—Sta. 1, 215 W. Green St., Centralia	...	....	.....	..
York, Geo. W.—118 W. Jackson St., Chicago	...	....	.....	..
Zachgo, Hugo—Danforth	49	1000	100	..
Zeller, Mrs. Caroline—R. 35, Box 48, Peoria	9	400	200	..
Zoll, C.—Box 62, Vermont	...	....	.....	..

MEMBERS WHO JOINED PER WESTERN ILLINOIS BEE-KEEPERS' ASSOCIATION.

Cave, Geo. W.—Kirkwood	...	....	.....	..
Johnson, J. E.—Dayton, New Mexico	...	.....	.....	..
Moore, J. H.—Brimfield	...	....	.....	..
Reynolds, Alvah—Altona	...	....	.....	..
Rodcliff, W. J.—Williamsfield	...	....	.....	..
Sheelor, S. R.—738 Clark St., Galesburg	...	....	.....	..

MEMBERS WHO JOINED PER NORTHERN ILLINOIS AND SOUTHERN WISCONSIN BEE-KEEPERS' ASSOCIATION.

Baker, A. H.—Durand	...	....	.....	..
Engle, Tobias—Freeport	...	....	.....	..
Kennedy, B.—Cherry Valley	22	500	.....	..
Kluck, N. A.—Lena	...	....	.....	..
Lee, H. W.—Pecatonica	...	....	.....	..
Schmertman, Lewis—Freeport	26	20	1775	..

State of Illinois—Department of State

ISAAC N. PEARSON, Secretary of State

To all to whom these Presents shall come—GREETING:

Whereas, A certificate duly signed and acknowledged having been filed in the office of the Secretary of State on the 27th day of February, A. D. 1891, for the organization of the Illinois State Bee-Keepers' Assocation, under and in accordance with the provisions of "An Act Concerning Corporations," approved April 18, 1872, and in force July 1, 1872, and all acts amendatory thereof, a copy of which certificate is hereunto attached.

Now, Therefore, I, Isaac N. Pearson, Secretary of State, of the State of Illinois, by virtue of the powers and duties vested in me by law, do hereby certify that the said, The Illinois State Bee-Keepers' Association, is a legally organized corporation under the laws of the State.

In Testimony Whereof, I hereunto set my hand and cause to be affixed the great seal of State.

Done at the City of Springfield, this 27th day of February in the [Seal] year of our Lord one thousand eight hundred and ninety-one, and the Independence of the United States the one hundred and fifteenth.

I. N. Pearson,
Secretary of State.

STATE OF ILLINOIS, } ss.
County of Sangamon. }

To Isaac N. Pearson, Secretary of State:

We, the undersigned, Perry J. England, Jas. A. Stone and Albert N. Draper, citizens of the United States, propose to form a corporation under an act of the General Assembly of the State of Illinois, entitled, "An Act Concerning Corporations," approved April 18, 1872, and all acts amendatory thereof; and for the purposes of such organizations, we hereby state as follows, to-wit:

1. The name of such corporation is, The Illinois State Bee-Keepers' Association.

2. The object for which it is formed is, to promote the general interests of the pursuit of bee-culture.

3. The management of the aforesaid Association shall be vested in a board of three Directors who are to be elected annually.

4. The following persons are hereby selected as the Directors, to control and manage said corporation for the first year of its corporate existence, viz.: Perry J. England, Jas. A. Stone and Albert N. Draper.

5. The location is in Springfield, in the County of Sangamon, State of Illinois. [Signed,]

Perry J. England,
Jas. A. Stone,
Albert N. Draper.

STATE OF ILLINOIS, } ss.
Sangamon County. }

I, S. Mendenhall, a notary public in and for the County and State aforesaid, do hereby certify that on this 26th day of February, A. D., 1891, personally appeared before me, Perry J. England, James A. Stone and Albert N. Draper, to me personally known to be the same persons who executed the foregoing certificate and severally acknowledged that they had executed the same for the purposes therein set forth.

In witness whereof, I have hereunto set my hand and seal the day and year above written.

S. Mendenhall,
[Seal] Notary Public.

CONSTITUTION AND BY-LAWS

---OF THE---

Illinois State Bee-Keepers' Association

CONSTITUTION

Adopted Feb. 26, 1901.

ARTICLE I.—Name.

This organization shall be known as the Illinois State Bee-Keepers' Association, and its principal place of business shall be at Springfield, Ill.

ARTICLE II.—Object.

Its object shall be to promote the general interests of the pursuit of bee-culture.

ARTICLE III.—Membership.

Section 1. Any person interested in Apiculture may become a member upon the payment to the Secretary of an annual fee of one dollar ($1.00). (Amendment adopted at annual meeting, November, 1905): And any affiliating Association, as a body, may become members on the payment of an aggregate fee of twenty-five cents (25c) per member.

Sec. 2. Any persons may become honorary members by receiving a majority vote at any regular meeting.

ARTICLE IV.—Officers.

Section 1. The officers of this Association shall be President, Vice-President, Secretary and Treasurer. Their terms of office shall be for one year, or until their successors are elected and qualified.

Sec. 2. The President, Secretary and Treasurer shall constitute the Executive Committee.

Sec. 3. Vacancies in office—by death, resignation and otherwise—shall be filled by the Executive Committee until the next annual meeting.

ARTICLE V.—Amendments.

This Constitution shall be amended at any annual meeting by a two-thirds vote of all the members present—thirty days' notice having been given to each member of the Association.

BY-LAWS

ARTICLE I.

The officers of this Association shall be elected by ballot and by a majority vote.

ARTICLE II.

It shall be the duty of the President to call and preserve order at all meetings of this Association; to call for all reports of officers and committees; to put to vote all motions regularly seconded, to count the vote at all elections, and declare the results; to decide upon all questions of order; and to deliver an address at each annual meeting.

ARTICLE III.

The Vice-Presidents shall be numbered respectively, First, Second, Third, Fourth and Fifth, and it shall

be the duty of one of them in his respective order to preside in the absence of the President.

ARTICLE IV.

Section 1. It shall be the duty of the Secretary to report all proceedings of the Association, and to record the same, when approved, in the Secretary's book; to conduct all correspondence of the Associatio, and to file and preserve all papers belonging to the same; to receive the annual dues and pay them over to the Treasurer, taking his receipt for the same; to take and record the name and address of every member of the Association; to cause the Constitution and By-Laws to be printed in appropriate form, and in such quantities as may be directed by the Executive Committee from time to time, and see that each member is provided with a copy thereof; to make out and publish annually, as far as practicable, statistical table showing the number of colonies owned in the spring and fall, and the amount of honey and wax produced by each member, together with such other information as may be deemed important, or be directed by the Executive Committee; and to give notice of all meetings of the Association in the leading papers of the State and in the bee journals at least four weeks prior to the time of such meeting.

Sec. 2. The Secretary shall be allowed a reasonable compensation for his services, and to appoint an assistant Secretary if deemed necessary.

ARTICLE V.

It shall be the duty of the Treasurer to take charge of all funds of the Association, and to pay them out upon the order of the Executive Committee, taking a receipt for the same; and to render a report of all receipts and expenditures at each annual meeting.

ARTICLE VI.

It shall be the duty of the Executive Committee to select subjects for discussion and appoint members to deliver addresses or read essays, and to transact all interim business.

ARTICLE VII.

The meeting of the Association shall be, as far as practicable, governed by the following order of business.

Call to order.
Reading minutes of last meeting.
President's address.
Secretary's report.
Treasurer's report.
Reports of committees.
Unfinished business.
Reception of members and collection.
Miscellaneous business.
Election and installation of officers.
Discussion.
Adjournment.

ARTICLE VIII.

These By-Laws may be amended by a two-thirds vote of all the members present at any annual meeting.

C. E. Yocom,
Aaron Coppin,
Geo. F. Robbins.

Formation of the Illinois State Bee-Keepers' Association.

Springfield, Ill., Feb. 26, 1891.

The Capitol Bee-Keepers' Association was called to order by President P. J. England.

Previous notice having been given that an effort would be made to form a State Association, and there being present bee-keepers from different parts of the state, by motion, a recess was taken in order to form such an Association.

P. J. England was chosen temporary chairman, and C. E. Yocom temporary secretary. On motion, the Chair appointed Thos. G. Newman, C. P. Dadant and Hon. J. M. Hambaugh a committee on constitution.

Col. Chas. F. Mills addressed the meeting on the needs of a State Association, and stated that it was his opinion that the bee-keepers should have a liberal appropriation for a State Apiarian Exhibit at the World's Columbian Exposition.

A motion to adjourn till 1:30 P. M. prevailed.

AFTERNOON SESSION.

The Committee on Constitution reported a form for same, which, on motion, was read by the secretary, by sections serially.

Geo. F. Robbins moved to substitute the word "shall" for "may" in the last clause of Section 1, Article III. This led to a very animated discussion, and the motion was lost.

J. A. Stone moved to amend the above-named section by striking out the word "ladies" and all that followed of the same section, which motion led to further discussion and motion finally prevailed.

Section 2, Article II., relating to a quorum, was, on motion, entirely stricken out.

Mr. Robbins moved to amend Article V. by adding the words, "Thirty days' notice having been given to each member." Prevailed.

Thos. G. Newman moved to adopt the Constitution, so amended, as a whole. Which motion prevailed.

See Constitution, page 8.

J. A. Stone moved that the Chair appoint a nominating committee of three on permanent organization. Prevailed.

Chair appointed as such committee, Col. Chas. F. Mills, Hon. J. M. Hambaugh, and C. P. Dadant.

Committee retired and in a few minutes returned, submitting the following named persons as candidates for their respective offices:

For President—P. J. England, Fancy Prairie.

For Vice-Presidents—Mrs. L. Harrison, Peoria; C. P. Dadant, Hamilton; W. T. F. Petty, Pittsfield; Hon. J. M. Hambaugh, Spring; Dr. C. C. Miller, Marengo.

Secretary—Jas. A. Stone, Bradfordton.

Treasurer—A. N. Draper, Upper Alton.

Mr. Black moved the adoption of the report of the committee on nominations. The motion prevailed, and the officers as named by the committee were declared elected for the ensuing year.

Hon. J. M. Hambaugh moved that Mr. Thos. G. Newman, Editor American Bee Journal, of Chicago, be made the first honorary member of the Association. Prevailed.

At this point Col. Chas. F. Mills said, "Mr. Chairman, I want to be the first one to pay my dollar for membership," at the same time suiting his action to his words, and others followed his example, as follows:

CHARTER MEMBERS.

Col. Chas. F. Mills, Springfield.
Hon. J. M. Hambaugh, Spring.
Hon. J. S. Lyman, Farmingdale.
C. P. Dadant, Hamilton.
Chas. Dadant, Hamilton.
A. N. Draper, Upper Alton.
S. N. Black, Clayton.
Aaron Coppin, Wenona.
Geo. F. Robbins, Mechanicsburg.
J. W. Yocom, Williamsville.
Thos. S. Wallace, Clayton.
A. J. England, Fancy Prairie.
P. J. England, Fancy Prairie.
C. E. Yocom, Sherman.
Jas. A. Stone, Bradfordton.

FIRST HONORARY MEMBER.

Thos. G. Newman, Editor American Bee Journal, Chicago.

(Bills to be offered in the 46th General Assembly.)

Bee-Keepers' Association

§ 1. For expenses of annual meetings, per annum, $1,000; officers to receive no salary.
§ 2. How drawn.
§ 3. Duty of Treasurer of Association.

A BILL

For an act making an appropriation for the Illinois State Bee-Keepers' Ass'n.

Whereas, The members of the Illinois State Bee-Keepers' Association have for years given much time and labor without compensation in the endeavor to promote the interests of the bee-keepers of the State; and,

Whereas, The importance of the industry to the farmers and fruit-growers ofthe State warrants the expenditure of a reasonable sum for the holding of annual meetings, the publication of reports and papers containing practical information concerning bee-keeping, therefore to sustain the same and enable this organization to defray the expenses of annual meetings, publishing reports, suppressing foul brood among bees in the State, and promote the industry in Illinois:

Section 1. Be it enacted by the People of the State of Illinois represented in the General Assembly: That there be and is hereby appropriated for the use of the Illinois State Bee-Keepers' Association the sum of one thousand dollars ($1,000) per annum for the years 1909 and 1910. For the purpose of advancing the growth and developing the interests of the bee-keepers of Illinois said sum to be expended under the direction of the Illinois State Bee-Keepers' Association for the purpose of paying the expenses of holding annual meetings, publishing the proceedings of said meetings, suppressing foul brood among bees in Illinois, etc.

Provided, however, That no officer or officers of the Illinois State Bee-Keepers' Association shall be entitled to receive any money compensation whatever for any services rendered for the same, out of this fund.

Sec. 2. That on the order of the President, countersigned by the secretary of the Illinois State Bee-Keeeprs' Association, and approved by the Governor, the Auditor of Public Accounts shall draw his warrant on the Treasurer of the State of Illinois in favor of the treasurer of the Illinois State Bee-Keepers' Association for the sum herein appropriated.

Sec. 3. It shall be the duty of the treasurer of the Illinois State Bee-Keepers' Association to pay out of said appropriation on itemized and receipted vouchers such sums as may be authorized by vote of said organization on the order of the president, countersigned by the secretary, and make annual report to the Governor of all such expenditures, as provided by law.

A BILL

For an act providing for the appointment of a State Inspector of Apiaries, and prescribing his powers and duties.

Whereas, The disease known as foul brood exists to a very considerable extent in various portions of this State, which if left to itself will soon exterminate the honey bees; and,

Whereas, The work done by an individual bee-keeper or by a State Inspector is useless so long as the official is not given authority to inspect and if need be destroy the disease when found; and

Whereas, There is a great loss to the bee-keepers and fruit-growers of the State each year by the devastating ravages of foul brood:

Section 1. Be it enacted by the People of the State of Illinois, represented in the General Assembly: That the Governor shall appoint a State Inspector of Apiaries, who shall hold his office for the term of two years and until his successor is appointed and qualified.

Sec. 2. Said Inspector shall, when notified of the existence of the disease known as foul brood among apiaries, examine all such as are so reported and all others in the same locality and ascertain whether or not such disease exists, and if satisfied of its existence, shall give the owner or the person who has the care of such apiaries full instructions as to the manner of treating them. In case the owner of a diseased apiary shall refuse to treat his bees or allow them to be treated as directed by the said Inspector, then the said Inspector may burn all the colonies and all the combs necessary to prevent the spread of the disease, provided, said Inspector shall, before burning, give one day's notice to the owner or other person who has the care of the colonies of bees and comb, that in his judgment should be burned.

Sec. 3. The Inspector shall, on or before the second Monday of December in each calendar year, make a report to the Governor and also to the Illinois State Bee-Keepers' Association stating the number of apiaries visited, the number of those diseased and treated, the number of colonies of bees destroyed, and of the expense incurred in the performance of his duties. Said Inspector shall receive four dollars for each day actually and necessarily spent in the performance of his duties and be reimbursed for the money expended by him in defraying his expenses, out of the appropriation made to the Illinois State Bee-Keepers' Association, provided, that the total expenditure for such purposes shall not exceed six hundred dollars per year.

Sec. 4. Any owner of a diseased apiary or appliances taken therefrom, who shall sell, barter or give away any such apiary, appliance, or bees from such apiary, expose other bees to the danger of contracting such disease, or refuse to allow the Inspector of Apiaries to inspect such apiary, or appliances, shall be fined not less than fifty dollars nor more than one hundred dollars.

A BILL

For an Act to prevent the Spraying of Fruit Bloom.

Whereas, The mutual interests of the Fruit-Growers and the Bee-Keepers of the State make it imperative that fruit-bloom be first fertilized and then protected by spraying, from the injury of insects that prey upon and destroy the fruit; and,

Whereas, The fruit-bloom is largely fertilized by the bees, which should not be poisoned by misunderstood and misapplied use of tree spraying; and,

Whereas, Fruit-trees should be sprayed when the fruit is forming, and not until after the bloom has been fertilized by the bees and otherwise; and,

Whereas, There is much danger to the health of the consumer of honey made from nectar of blossoms poisoned by the spraying of compounds:

Section 1. Be it enacted by the People of the State of Illinois, represented in the General Assembly: That it shall be unlawful for any one to spray fruit-bloom with any poisoning compound that may endanger the life of the honey-bees that feed upon the nectar of such bloom, or the health of those who eat the honey produced therefrom.

Section 2. Any person violating the provision of this Act shall be deemed guilty of a misdemeanor, and shall be fined not less than Ten, or more than Fifty Dollars, for each offence, and it is hereby made the duty of the State's Attorney of the several counties of this State to enforce this Act, and prosecute all cases brought under this Act.

No._____

CERTIFICATE OF

ILLINOIS STATE INSPECTOR OF APIARIES.

Date.....190...

I have this day inspected the apiary of:—

Mr. .....

P. O.....

No. of colonies in apiary.....

Last winter..... { In cellar.....Loss.....
Outside .....Loss.....

190....Honey.... { Lbs. Comb.....
Lbs. Extracted .....

No. colonies apparently healthy.....

No. colonies diseased.....

Name of disease.....

Date bees to be treated.....

No. colonies or hives to be burned.....

Subscriber for.....

Remarks.....

.....

.....

Foul Brood Inspector of Illinois.

Foul Brood and Other Diseases of Bees

(Republished by permission of N. E. France, Foul Brood Inspector of Wisconsin.)

Foul brood—bacillus alvei—is a fatal and contagious disease among bees, dreaded most of all by bee-keepers. The germs of disease are either given to the young larval bee in its food when it hatches from the egg of the queen-bee, or it may be contagion from a diseased colony, or if the queen deposits eggs, or the worker-bees store honey or pollen in such combs. If in any one of the above cases, the disease will soon appear, and the germs increase with great rapidity, going from one little cell to another, colony to colony of bees, and then to all the neighboring apiaries, thus soon leaving whole apiaries with only diseased combs to inoculate others. The Island of Syria in three years lost all of its great apiaries from foul brood. Dzierzon, in 1868, lost his entire apiary of 500 colonies. Cowan, the eidtor of the British Bee Journal, recently wrote: "The only visible hindrance to the rapid expansion of the bee industry is the prevalence of foul brood, which is so rapidly spreading over the country as to make bee-keeping a hazardous occupation."

Canada's foul brood inspector, in 1890 to 1892, reported 2,395 cases, and in a later report for 1893 to 1898, that 40 per cent of the colonies inspected were diseased. Cuba is one of the greatest honey-producing countries, and was lately reported to me by a Wisconsin bee-keeper who has been there, and will soon return to Wisconsin: "So plentiful is foul brood in Cuba that I have known whole apiaries to dwindle out of existence from its ravages, and hundreds more are on the same road to sure and certain death. I, myself, took in 90 days in Cuba, 24,000 pounds of fine honey from 100 colonies, but where is that apiary and my other 150-colony apiary? Dead from foul brood." Cuba, in 1901, exported 4,795,600 pounds of honey, and 1,022,897 pounds of bees-wax.

Cuba at present has laws to suppress foul brood, and her inspector is doing all possible to stamp the same from the island.

Even in Wisconsin I know of several quite large piles of empty hives, where also many other apiaries where said disease had gotten a strong foothold. By the kindness of the Wisconsin bee-keepers, and in most cases by their willing assistance, I have, during the last five years gotten several counties free of the disease, and at the present writing, March 12, 1902, have what there is in Wisconsin under control and quarantined. This dreadful disease is often imported into our State from other States and countries, so we may expect some new cases to develop until all the states shall enact such laws as will prevent further spread of the same. Arizona, New York (1899), California (1891), Nebraska (1895), Utah (1892), Colorado (1897), have county inspectors, and Wisconsin (1897), and Michigan (1901), have State inspectors. The present Wisconsin law, after five years of testing and rapid decrease of the disease, is considered the best, and many other states are now making efforts to secure a like law.

There are several experimental apiaries in Canada under control of the Ontario Agricultural College, also a few in the United States, especially in Colorado, that have done great work for the bee-keeping industry, and their various published bulletins on the same are very valuable. The Wisconsin State Bee-Keepers' Association has asked that an experimental apiary might be had on the Wisconsin Experimental farm, but at present there are so many departments asking for aid that I fear it may be some time before bee culture will be taken up.

Causes of Foul Brood.

1. Many writers claim foul brood

originates from chilled or dead brood. Dr. Howard, of Texas, one of the best practical modern scientific experimenters, a man of authority, has proved beyond a doubt that chilled or common dead brood does not produce foul brood. I have, in the last five years, also proven his statements to be true in Wisconsin, but I do believe such conditions of dead brood are the most favorable places for lodgment and rapid growth of diseases. Also, I do not believe foul brood germs are floating in the air, for, if they were, why would not every brood-comb cell of an infected hive become diseased? I believe that this disease spreads only as the adult bees come in contact with it, which is often through robber-bees. Brood-combs should not be removed from any colony on cold or windy days, nor should they be left for a moment in the direct rays of sunshine on hot days.

2. The foul brood may be caused by the need of proper food and temperature. Generally this disease does not appear to be serious during a honey-flow, but at the close of the honey season, or at times of scarcity, it is quite serious, and as the bees at such times will rob anywhere they can find stores, whether from healthy or diseased combs, it is the duty of every bee-keeper to keep everything carefully protected. Hive-entrances contracted, no old combs or any article with a drop of honey in where the bees can get to it. While honey is coming in from the various flowers, quite a portion is used direct as food for the larval bee, and with such no disease would be fed to the bees. Such fed bees, even in a diseased hive, will hatch, as is often the case. I never knew a case where a bee hatched from a brood cell that had ever had foul brood in. If the germs of disease are there in the dried scale attached to the lower side walls, bees will store honey therein, the queen will deposit eggs, or the cell may be filled with pollen, or bee-bread, as some call it. Said honey or pollen, when it comes in contact with those germs of disease, or the food given to the young bee, if in the proper temperature, said germs of disease will grow and develop rapidly.

Causes of Contagion.

I fully believe that if the history of foul brood in Wisconsin were known, nearly every case could be traced to contagion from diseased combs, honey or from some diseased queen-breeders' cages. Here are some instances where I have traced the history of contagion in Wisconsin:

1. Diseased apiaries, also single colonies, sold either at auction or private sale. Several law-suits have resulted in the settlement of some of the cases.

2. Brood-combs and various implements from diseased hives, used by other bee-keepers, and borrowed articles.

3. All the bees in an apiary dead from foul brood, and the hives having an abundance of honey in the brood-combs, said combs placed out by the side of hives so that neighbor's bees might get the honey. From those combs I lined robber bees to seven other apiaries, and each time became diseased and were treated.

4. Robber bees working on empty honey-packages in the back-yards of grocery stores and baking factories. Said honey came from diseased apiaries, some located in far distant States, even Cuba.

5. Loaning of hives, combs, extractors, and even empty honey-packages.

6. Buying honey from strangers, or not knowing where it was produced, and feeding it to bees without boiling the honey.

7. Too common a practice of using old brood-combs from some apiary where the owner's bees have died from "bad luck," as he calls it.

8. Queen-bee—by buying queen-bees from strangers and introducing her in the cages they came in. I have traced several new outbreaks of the disease to the hives where such queens were introduced, and the queens came from distant States. To be safe, on arrival of queen, put her carefully alone in a new and clean cage with good food in it. Keep her in there, warm and comfortable, for a few hours before introducing. The shipping cage and every bee that came with the queen should be put in the stove and burned. I do not think there is any danger from the queen so treated, even from diseased hives, but I do know of many cases where disease soon appeared in the hives where the shipping-cage and bees were put in with the colony. The great danger is in the food in said cage being made from diseased honey. I was called to attend a State bee-keepers' meeting in another State and

I asked if any there had had experience with foul brood. There was a goodly number of raised hands. Then I asked, "Do any of you think you got the disease by buying queen-bees?" Again several hands were raised. Even bee-keepers there had traced the disease in their apiaries to the buying of queens, and all from the same breeder. If you get queens from abroad, I hope you will do with them as I have described above. Better be on the safe side.

EXPERIMENTS.

1. A prominent Wisconsin bee-keeper some years ago had foul brood among his bees so bad that he lost 200 colonies before the disease was checked. Having a honey-extractor and comb-foundation machine, he first boiled the hives in a large sorghum pan, then in a kettle all combs were melted after the honey was extracted, the honey was boiled and also the extractor and implements used. The bees were returned to their hives on comb-foundation he made from the wax made from the melted combs, then fed the boiled honey. Several years have passed and there has been no signs of disease in his apiary since.

2. Foul-brood germs are not always killed when exposed to a temperature of 212 deg. F. (boiling point) for 45 minutes. But in every case where the combs are boiled in boiling water, and same were well stirred while boiling, no germs were alive.

3. Foul brood in brood-combs is not destroyed when exposed to the temperature of Wisconsin winters of 20 deg. below zero, and in one case I developed foul brood from combs that had been exposed to 28 deg. below zero.

4. Honey, if stored in diseased combs, acts as a preserving medium, and in such cases the germs of disease will remain so long as the comb is undisturbed. Four years at least.

5. Honey or beeswax, or the refuse from a solar or sunheat extractor, is not heated enough to kill foul-brood germs. Several cases of contagion where robber-bees worked on solar extractor refuse or honey.

6. Comb-foundation made by supply manufacturers is free from live germs of disease and perfectly safe to use. To prove this experiment beyond a doubt I took a quantity of badly-diseased brood-combs from several apiaries and rendered each batch of combs into wax myself on the farm where found. Then on my own foundation mill I made some brood-foundation. I also took quite a quantity more of said wax, went to two wholesale comb-foundation manufacturers, and both parties willingly made my experimental wax into comb-foundation just the same as they do every batch of wax. I then divided the various makes of foundation and selected 20 of the best bee-yards in Wisconsin, where no disease had ever been known, had the same placed in 62 of their best colonies, and in every case no signs of disease have appeared. Those same colonies continue to be the best in the various apiaries.

SYMPTOMS OF FOUL BROOD.

1. The infected colony is not liable to be as industrious. Hive entrance with few guard bees to protect their home. Sometimes fine dirt or little bits of old comb and dead bees in and around the hive-entrance, and often robber-bees seeking entrance.

2. Upon opening the hive, the brood in the combs is irregular, badly scattered, with many empty cells which need inspection.

3. The cappings over healthy brood are oval, smooth and of a healthy color peculiar to honey-bee brood, but if diseased the cappings are sunken, a little darker in color, and have ragged pin-holes. The dead larval bee is of a light color, and, as it is termed, ropy, so that if a toothpick is inserted and slowly withdrawn, this dead larva will draw out much like spittle or glue.

5. In this ropy stage there is more or less odor peculiar to the disease; it smells something like an old, stale gluepot. A colony may be quite badly affected and not emit much odor, only upon opening of the hive or close examination of the brood. I have treated a few cases where the foul brood odor was plainly noticed several rods from the apiary.

6. Dried Scales—If the disease has reached the advanced stages, all the above-described conditions will be easily seen and the dried scales as well. This foul matter is so tenacious that the bees cannot remove it so it dries down on the lower side-wall of the cell, midway from the bottom to front end of the cell, seldom on the bottom of the cell. According to its stage of development there will be

either the shapeless mass of dark-brown matter, on the lower side of the cell, often with a wrinkled skin covering as if a fine thread had been inserted in the skin lengthwise and drawn enough to form rib-like streaks on either side. Later on it becomes hardened, nearly black in color, and in time dries down to be as thin as the side-walls of the cell. Often there will be a small dried bunch at the front end of the cell not larger than a part of common pin-head. To see it plainly, take the comb by the top-bar and hold it so that a good light falls into the cell at an angle of 75 degrees from the top of the comb, while your sight falls upon the cell at an angle of about 45 degrees. The scales, if present, will easily be seen as above described. This stage of disease in combs is easily seen and is always a sure guide or proof of foul brood. Such combs can never be used safely by the bees and must be either burned or carefully melted. Be sure not to mistake such marked combs in the spring for those soiled with bee-dysentery. The latter have a somewhat similar appearance but are more or less surface soiled, and will also be spotted or have streaked appearance by the dark-brown sticky excrements from the adult bees.

TREATMENT.

"A bee-keeper who does not discover foul brood, before his nostrils remind him that there is something wrong with his bees, is not the proper person to treat the case." Dr. Howard, in his valuable book on foul brood, states, "I regard the use of all drugs in the treatment of foul brood as a useless waste of time and material, wholly ineffectual, inviting ruin and total loss of bees. Any method which has not for its object the entire removal of all infectious material beyond the reach of both bees and brood will prove detrimental and destructive, and surely encourage the recurrence of the disease." In Wisconsin I have tried many methods of treatment, and cured some cases with each method, but the one that never fails, if carefully followed, and that commends itself is the McEvoy treatment. Canada's foul brood inspector has cured foul brood by the wholesale—thousands of cases.

McEVOY TREATMENT.

"In the honey season when the bees are gathering honey freely, remove the combs in the evening and shake the bees into their own hives; give them frames with comb-foundation starters and let them build comb for four days. The bees will make the starters into comb during the four days and store the diseased honey in them, which they took with them from the old comb. Then in the evening of the fourth day take out the new combs and give them comb-foundation (full sheets) to work out, and then the cure will be complete. By this method of treatment all the diseased honey is removed from the bees before the full sheets of foundation are worked out. All the old foul-brood combs must be burned or carefully made into wax, after they are removed from the hives, and all the new combs made out of the starters during the four days must be burned or made into wax, on account of the diseased honey that would be stored in them. All the curing or treating of diseased colonies should be done in the evening, so as not to have any robbing done, or cause any of the bees from the diseased colonies to mix and go with the bees of healthy colonies. By doing all the work in the evening it gives the bees a chance to settle down nicely before morning, and then there is no confusion or trouble. This same method of curing colonies of foul brood can be carried on at any time from May to October, when the bees are not getting any honey, by feeding plenty of sugar syrup in the evenings to take the place of the honey-flow. It will start the bees robbing and spread the disease to work with foul brood colonies in warm days when the bees are not gathering honey, and for that reason all work must be done in the evenings when no bees are flying.

"When the diseased colonies are weak in bees, put the bees, two, three, or four colonies together, so as to get a good-sized colony to start the cure with as it does not pay to spend time fussing with little, weak colonies. When the bees are not gathering honey any apiary can be cured of foul brood by removing the diseased combs in the evening and giving the bees frames with comb-foundation starters on. Then also in the evening feed the bees plenty of sugar syrup

and they will draw out the foundation and store the diseased honey which they took with them from the old combs; on the fourth evening remove the new combs made out of the starters and give the bees full sheets of comb foundation and feed plenty of sugar syrup each evening until every colony is in first-class order. Make the syrup out of granulated sugar, putting one pound of water to every pound of sugar, and bring it to a boil. As previously stated, all the old comb must be burned or made into wax and so must all new combs made during the four days. No colony is cured of foul brood by the use of any drug."

A. I. Root, of Medina, Ohio, says: "The starvation plan in connection with burning the combs and frames and boiling the hives has worked the best in treating foul brood. It never appeared after such treatment, though it did in some cases where hives were honey-stained and not boiled, thus confirming the theory or fact of spores."

All the difference from the McEvoy treatment that I practice is this: I dig a deep pit on level ground near the diseased apiary, and after getting a fire in the pit such diseased combs, frames, etc., as are to be burned are burned in this pit in the evening, and then the fresh earth from the pit returned to cover all from sight. Often I use some kerosene oil, a little at a time being poured on old brood-combs or those having much honey in, as they are hard to burn. If diseased combs with honey in are burned on the surface of the soil there is great danger; the honey when heated a little will run like water on the soil, and in the morning the robber-bees will be busy taking home the diseased honey that was not heated enough to kill germs of foul brood.

I also cage the queen while the bees are on the five or six strips of foundation. It helps to keep the colony from deserting the hive and going to other colonies.

R. L. Taylor, Michigan University experimental apiary, reports. "The plan that the colony be shaken out into another hive after being allowed to build comb for four days, I have proven in 100 cases to be unnecessary."

In Wisconsin, I, too, have cured several cases by the one transferring, when honey was not coming in very freely, but it is better, and a great saving of time to both bees and owner, to exchange in three or four days those foundation starters, for full sheets of foundation. Diseased brood-combs, and those with honey in, if melted in a sun or solar extractor, the wax, honey or residue is not hot enough to kill germs of foul brood. This I have proven by several experments. It must be boiled and well stirred while boiling to be safe.

I do not believe in, or practice, burning any property, such as hives, bees, beeswax or honey that can be safely treated and saved. Many times it is poor economy to save all, and as so many bee-keepers are not so situated as to keep all diseased material from robber-bees while taking care of it, the best and only safe way is to burn the diseased combs and frames.

Utah.

Utah has county inspectors, and from one who has remarkable success I copy the report of his method of treatment:

"Wherever found, it should be dealt with earnestly and with dispatch. If the colony is weak, I recommend smothering the bees, and in order to do this without letting a bee escape take a tablespoonful of sulphur and place it in the hive entrance of the hives; if there is any breeze, turn the hive so it will blow in the entrance. Then fire the sulphur and it will soon kill the bees. This should be done early in the morning before any of the bees are flying, as one bee escaping from the hive might carry the disease to any colony with which it may take up its abode. If the colony is a strong one, I would keep the entrance partly closed so as to prevent any other bees from getting in. Then as soon as fruit blossoms come out so the bees can obtain honey I treat them. I procure an empty box of any kind so it is clean, then find the queen, put her in a screen wire cage which is easily made. Take a small piece of screen, roll it up and tie a string around either end, cork up one end, then place the queen and a few workers for company in the cage and place in the other end cork. Put same in this box and shake all the bees out of their hive into this box. This must be done in the evening when no bees are flying. Keep the queen in this box 24 to 48 hours, allowing the bees to fly in and out as they please. Next take a clean hive with good healthy combs or foundation and shake

bees into it, letting the queen go and they will be free from disease. The old combs are melted into wax, bringing same to a good boil. Often washing with boiling water any hives or implements that might contain disease. Wherever strictly followed, this has effected a cure."—C. Wilcox, Emery Co., Utah.

Pickled Brood.

Some seasons pickled brood is quite bad among bees, and in a few cases I have known it to reduce large colonies even large apiaries to doubtful hopes but those same colonies, after I gave them treatment, were in a month free from all disease. Sometimes it takes as careful handling as if foul brood. I do not believe it is contagious, for all I have seen 60 colonies in one apiary badly reduced by it. As an experiment one of my out-apiaries had 50 colonies at one time with pickled brood. I treated them and all were soon free from dead brood. At the same time I took ten of the worst brood-combs, where at least two-thirds of the brood were dead, and placed these combs in other strong, healthy colonies. They at once cleaned out the dead brood and reared as nice brood as one could ask for.

Symptoms.

The larval bees (in last of May and through June) show light-brown spots; a little later the cappings have small holes in—the cappings are not shrunken or dark-colored as in foul brood. The dead bee will be first swollen, with a black head, dried to a hard bunch and often turned up—Chinaman-shoe-like. The skin of the dead bee is quite tough, and, if punctured, the thin, watery fluid of the body will flow as freely as water, often a little yellow or brownish-colored from the dissolved pollen from the abdomen of the bee. It has very little or no smell, does not at any time stick to the walls of the comb, is easily pulled out of the cell, is never ropy or sticky, and if the colony is properly cared for, the bees will take care of themselves. Plenty of liquid, unsealed honey and pollen near the brood, and hives so protected as to keep bees and brood comfortable on cold days and nights.

Never put bees on old black brood-combs, or those with dead brood in; better make wax of the combs and give the bees full sheets of brood-comb foundation.

Treatment.

Keep all colonies strong, with plenty of unsealed honey near the brood, and if hives are properly sheltered so as to be warm on cold days and nights there will be little or no pickled brood. If the queen is old, shows signs of weakness by putting several eggs in one brood-cell and nursing several others, so that the brood is patchy, I would kill such a queen, feed the bees a little, and when queen-cells are started, remove them all and give them a queen and bees, between two of her own brood-combs from a hive where she has lived. I do not think pickled brood is often the fault of the queen, but rather a lack of proper food and heat in the hive. In most cases a shortage of liquid honey, or moldy pollen, even in hives with plenty of sealed honey in the outer combs. There is a time in spring in Wisconsin between dandelions and white clover bloom when there is no honey coming in from flowers and often cold days and nights so that the live bees consume the liquid, unsealed honey first, and cluster in a compact body to keep warm, the result often is the larval bee just changed from the egg to a tender little grub, is either starved, half-fed or chilled so that it grows slowly and too often it dies, and then it is we first notice this about the time white clover honey begins to come in. In other parts of the State, where pickled brood appeared it was from the same cause, and at other dates, which was due to a difference of time of honey bloom.

Wherever I fed daily some honey or even sugar syrup, and kept the hive warm, all dead brood soon disappeared, while in the same apiaries other colonies affected and not so treated continued for some time, but got rid of it as soon as treated.

Strong colonies of bees in the fall with a young laying queen, and an abundance of good honey sealed or capped by the bees, if properly cared for during winter whether in the cellar or in chaff hives, wintered out of doors in sheltered location, seldom have pickled brood, chilled or other dead brood, or dysentery, and are the colonies that give their owner profit.

Black Brood.

Black brood is another fatal and contagious disease among bees affecting the old bees as well as the brood.

In 1898, 1899 and 1900, it destroyed several apiaries in New York. Last year I found one case of it in Wisconsin, which was quickly disposed of. Dr. Howard made more than a thousand microscopic examinations and found it to be a distinct form of bacteria. It is most active in sealed brood. The bees affected continue to grow until they reach the pupa stage, then turn black and die. At this stage there is a sour smell. No decomposition from putrefactive germs in pickled brood. In black brood the dark and rotten mass in time breaks down and settles to lower side-walls of the cell, is of a watery, granulated, syrupy fluid, jelly-like, is not ropy or sticky as in foul brood, and has a peculiar smell, resembling sour, rotten apples. Not even a house-fly will set a foot upon it.

Treatment.

Best time is during a honey-flow. and the modified McEvoy plan, much as I have treated foul brood, by caging the queen five days, remove the foundation starters and giving full sheets, keeping queen caged five days longer. As great care should be taken of diseased hives, combs, honey, etc., as in foul brood.

Dysentery.

Dysentery among bees in Wisconsin in the spring of the year is often quite serious. Many colonies die with it. Dysentery is the excrements of the old bees; it is of brownish color, quite sticky, and very disagreeable-smelling and is sometimes mistaken for foul brood.

Causes.

1. Bees confined too long in the hives, so that they can no longer withhold their excrements, and are compelled to void the same on the other bees and combs.

2. Poor winter stores gathered in the fall from honey-dew, cider-mills, sorghum-mills, rotten fruit, also some kinds of fall flowers.

3. Old and especially moldy pollen or bee-bread.

4. Hives too cold or damp. If moisture from the breath of the bees is not carried out of the hive by some means, such as through a deep cushion of some kind over the bees that will absorb moisture and at the same time retain the heat, or by some means of ventilation so that all is dry and comfortable. If mold forms on the combs or cellar so damp as to form mold, there is great danger the bees will have dysentery and die.

Treatment.

1. First of all, have an abundance of combs of sealed clover or basswood honey in brood-frames carefully saved, and see that each colony is wintered on such food. Three or four such combs will winter a fair colony safely if confined on those combs late in the fall and the hive contracted to fit the same. This is one of the most important conditions for success in wintering.

2. If in the fall the bees have gathered this unwholesome honey from the above-named sources, it should all be extracted and either exchanged for those honey-combs, or feed the bees good honey or sugar syrup until winter stores are secured. This should be done before cold weather in the fall.

3. Hives contracted and made comfortable, whether in cellar or outdoors.

4. If wintered in chaff hives outdoors with feed as above directed, and there come one or two warm spells during winter so that bees can have a cleansing flight, they will not have dysentery or dead brood, and will be much stronger when clover opens.

If wintered in the cellar the bees will not need as much honey, and if the winters are generally long with doubtful warm spells, the cellar will be best. But to keep the bees from dysentery so often fatal to cellar-wintered bees, they should have such winter stores as above spoken of, then the cellar kept at a uniform temperature, about 42 deg. F., ventilated so the air is fresh, and no mold will form in the cellar. Fresh air-slacked lime on the bottom of the cellar may help if it is damp or has poor air.

5. Dysentery will not appear if bees are kept on sugar syrup, or best-grade white clover or basswood honey, and are in a dry place, either sheltered by cellar or chaff-hive.

PROCEEDINGS

OF THE

. . . SEVENTEENTH ANNUAL SESSION . . .

OF THE

Illinois State Bee-Keepers' Association

NOVEMBER 19 AND 20, 1907

Morning Session, Nov. 19.

The meeting was called to order at 10:30, President Smith in the chair. The financial report of the Secretary, and the report of the Treasurer were read and both were accepted.

The committee appointed to consider the premium list made a report, suggesting only corrections of minor importance in the list as published last year.

President Smith appointed the auditing committee, as follows: Messrs. C. P. Dadant, Frank Hinderer and A. L. Kildow.

On motion the meeting adjourned until 1:30 P. M.

Afternoon Session, Nov. 19.

The meeting was called to order as per adjournment and the report of the auditing committee was read and on motion received.

The undersigned auditing committee hereby report that they have examined the books and find account correct:

Balance in treasurer's hands in both funds	$1,185.54
Balance in secretary's hands in State Ass'n fund	54.25
Balance due him from State fund	27.93
Total due by Sec'y	$ 26.32
Total in hands of both Secretary and Treasurer	$1,211.86

C. P. DADANT,
FRANK HINDERER,
A. L. KILDOW,
Auditing Committee.

The further report of the Secretary being called for Mr. Stone said that having unfortunately left his notes on his desk at home, he would be obliged to give what he could remember of the matters to be brought up and suggested that if members thought of anything which he failed to mention they should ask questions. He said:

"I wish to state that our membership this year has been much larger than ever before—that is members coming direct into the State Association and number now 126. The same method of securing and keeping our membership has been used that was adopted 15 years ago by Mr. Draper of Upper Alton.

The Association adopted the plan of sending out notices to bee-keepers. Last year they were sent to 2,000 or 2,200 parties and in that way we succeeded in swelling the membership. Our membership in the National Association is larger than that of any other state and our own membership is the largest of any association except the National.

We have very few members right here in the city. They have access to our reports and get all the information they want which is the reason they will not take the trouble to come to the meetings. We furnish our reports to the State Board of Agriculture and do not think there is anything wrong in doing so, but it enables anyone who wants a report to get it for the asking. And they claim they have not the time to come to the convention, but still they have the reports. The small at-

tendance is not because these meetings are not well advertised, for we had notices in every paper in the city and notices are in both the morning papers this morning.

At our last meeting it was voted that we have 500 copies of our report published and that was the number we had printed. One hundred and fifty of those were cloth bound and they have all been consumed but five or six. We still have some of the paper bound copies. In having these reports printed we have to make allowance for parties outside our own state and membership. Our reports are sent for from other states and for libraries like that of the Department at Washington; also the State of New York sends every year for copies for their library and other different libraries here in the State House each must have a copy. This takes a good many, but we want them to go to these places—we do not want to refuse them. We have also sent several even to Australia. We cannot therefore always tell how many copies may be needed.

Another matter which I wish to speak of is the badges. We had so many of the old badges we hardly knew what to do about new ones. The committee had a meeting during the State Fair and decided to get these 50 new ones. There were badges left last year which some members have suggested might be used by cutting off the date and attaching a ribbon.

I want to suggest that we bear in mind all important questions in the question box and write up something on that subject which we will publish in the report just as though you had asked the question here. We probably could get a better report that way and each will have opportunity to say what he wants to say and will have the time to put it into better shape and make his point clearer than in the hurry of the discussions here."

Mr. York: "Mr. France told me that Illinois had the largest membership in the National of any of the states; that we were the highest and have been, for some time, the highest in membership in the National. I hope we will keep up this good record for membership."

J. Q. SMITH, Lincoln, Ill.,
President Illinois State Association and State Foul Brood Inspector.

Mr. Dadant: "As a member of the committee I notice that the badge referred to cost $50 and this year cost $11. The original cost of the queen bee on the metal was the greatest expense and I think they ought not to be thrown away. I suggest that one of the ribbons be cut out and by making this change it will make a very nice badge for several years and it would be foolish to spend so much money again on badges. To pay ten or fifteen dollars a year for badges out of an income of less than a hundred dollars is too much of a tax. For that reason I am in favor of economizing and using the old badges."

Mr. Stone: "Another matter I wish to mention is the attendance of a member of one of the affiliated societies at this meeting. I suggest that he be allowed to come in as a member and that his railroad fare be paid, as a delegate to this convention. If there is anything to induce affiliated societies to do so, they will send a member to these meetings."

Mr. Baxter: "I move that such members of other societies as are here be received in that way and have the privileges of members of this association."

Which motion was approved and Mr. G. W. Cave, a delegate from the Western Illinois Society, was so received.

Mr. Dadant: "I would like to ask for a report of the committee on legislation."

Mr. Stone: "As first steps in that direction we got a stenographer to make copies of bills to be introduced in the house and senate—three bills. In the senate they were introduced by Senator Berry in the house by Representative Heinl. We had not had the bills in long until we found that they were opposed to the spraying bill. Senator Dunlap, president of the State Horticultural Society, was chairman of the committee to which it was referred in the senate so our bill came before him."

Mr. Baxter: "Dunlap is not president of the State Horticultural society."

Mr. Stone: "Perhaps he is not now, but he has been, and at any rate he was opposed to spraying, and our bill came before his committee. And Mr. Heinl, who had introduced our bill in the house, was a friend of Senator Dunlap and had said he would not offer the bill unless Dunlap was favorable to it.

We went to see Senator Dunlap. He had a letter from a man in the northern part of the state, who said in the letter that he was representing a large business—was a representative man. etc.—the chairman of our committee guessed who the letter was from. Dunlap was surprised that he could name the man. He said he had no use for a foul brood law.

We sent letters to some of the members of the Association before the time for the meeting of the committee the next week. When we saw him again Senator Dunlap said the letter would not be read.

Mr. Heinl of the house made some objections to our bills. He said our reports were too large and that we paid too much for them.

I said we have no more printed than enough to supply the demand.

He said we ought to get them out sooner.

We can get them out no sooner as we have to wait for members to join at first of year.

I tried to hurry them as much as possible, and did get the report from the printer on the very day that the legislature adjourned.

The foul brood bill went through the senate and to third reading in the house where they demanded a roll call and it was defeated on roll call. It lacked only four votes of getting through on third reading.

The appropriation bill had in it the same things as two years before. That went through both houses all right.

They said we would not be allowed to name the foul brood inspector.

The foul brood bill passed the senate without any trouble and was taken over to the house."

Mr. Baxter: I was anxious to see those bills become laws and I went to Champaign and saw Profs. Davenport, Burrill and Forbes, whom I have known for a number of years and they promised to help us pass these bills. Senator Dunlap had said that he would never pass the spraying bill, that it would be a detriment to the orchardists of the state. I went to our representatives—and said to Senator Berry that I hoped he would do all he could.

Mr. Dadant "With all due respect for the professors whose names have been mentioned, I would say that they know many other things, but they do not know much about bees.

"There was no evidence to show much suffering from spraying. The burden of proof, however, must be with

the bee-keepers. We had some letters but they were not such as were sufficiently convincing."

Mr. Baxter: "I do not agree with you about the usefulness of our professors. In New York state they have made a very exhaustive study of this subject."

Mr. Kluck referred to the case of an experiment made with apple trees in bloom where part were protected and part exposed and said the orchardists had never made any reference to that experiment.

Mr. York: "Some one said that Mr. Dunlap said if a large orchard had to be sprayed, it made it impossible to do it in time unless the owner began before the bloom was all off. But he was of the opinion that no progressive fruit grower would spray his trees during fruit bloom, as it destroyed the fruit. If that is known to orchardists it seems to me that they and the bee-keepers ought to pull together on this matter."

Mr. Baxter: "Nauvoo is the oldest fruit growing point in the state of Illinois. We have people there who are intelligent horticulturists and they persist in spraying while the trees are in full bloom. What are you going to do? Mr. Dunlap sprays his during bloom."

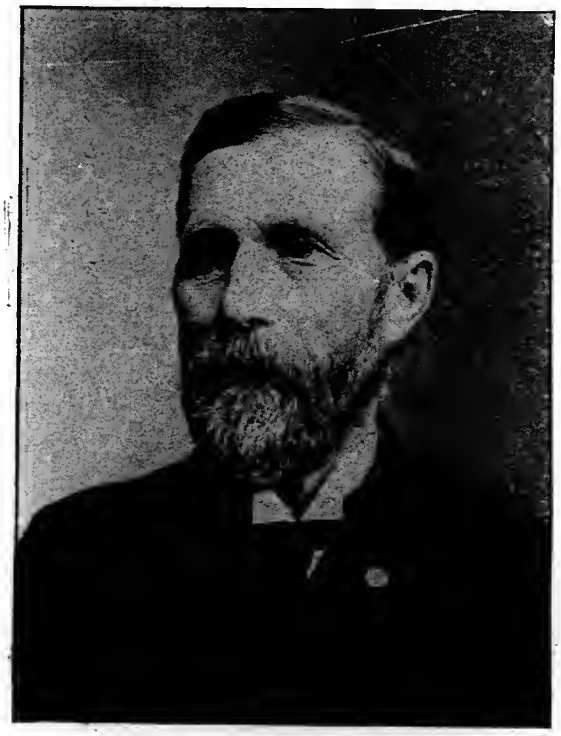
Mr. Kildow: "You cannot kill curculio by spraying at all. He raises up the skin of the fruit and deposits the egg and the skin soon dries down over the place and you can't kill that or any other bug that does not chew."

Mr. Stone: "We have a very intelligent horticulturist with us who says that his experience is that spraying blooming trees does not do a bit of good.

"As for our own experience, we wash our fruit trees with a wash that is made of lime and whale-oil soap. After a while we began to double the quantity of whale-oil soap. We began to talk about it, about the same time there was the talk about bees injuring the grapes. Mr. Buckman said to me, 'You will get to spraying after a while.' I said, 'We will not go to spraying until we have to.' We put this wash on to keep sheep from the trees. We have good fruit all the time. I have taken premiums over Dunlap and others with fruit not sprayed several times."

Mr. Baxter: I cannot let this assertion go unchallenged. We have lost crops year after year by the curculio. We have tried spraying trees and saved the fruit.

Mr. Dadant: Can we not have a



JAS. A. STONE, Secretary.
Courtesy of Col. C. F. Mills.

report from the President on foul brood?

President Smith: I would like to have some of our visitors make some report on this subject.

I found in Mr. Hinderer's case that he had a neighbor who would not clean up. That neighbor had 160 hives which are now reduced to 16. At that rate, if the neighbor did not buy new colonies to add to his stock, he would soon be out of Mr. Hinderer's way.

I have traveled the length and breadth of the state from Morrison to the Indiana line. Morrison is in Whiteside county, and there are more bees in Whiteside county than in any other county in the state. We have there one of the largest apiaries in the State. They ship large quantities of honey. They sent for me to cure foul brood and I stayed there two days. He transferred nearly all of his bees, and that fall he told me he had a carload of honey which he shipped to Boston. The next year he was clear of foul brood.

But there are localities along the Illinois river where it is hard to keep it down. It would be worse if the bee-keepers who are intelligent and awake to the danger were not continually working to keep it down.

Mr. Baxter: I would like to ask our foul brood inspector what is the present condition as compared with former years?

President Smith: They had it in two-thirds of the counties of the state three years ago, and now there is only a trace of it found occasionally.

Kluck: Have you been at Rockford?

President Smith. Yes, I was there.

Kildow: I have had some trouble. Mr. Smith has been there a time or two. **But it is a hard matter to keep your own bees clean and healthy when you have neighbors who do not care whether theirs live or die.** I have such a neighbor and he won't sell out. I am interested to have a law passed that will compel these fellows to do something. If we could just have a foul brood law, with this other appropriation, it looks to me like it would do some good.

Mr. Kluck: **We must have a law that will give our foul brood inspector police powers.** The appropriation is all right, but he must have more power, so that when he goes to a place and finds foul brood he can compel the owner to have it done away with. We find that the inspector in Wisconsin has been successful.

President Smith: The meanest things were said to me in the northwest. They objected to having their property interfered with. If the property is dying, but you can save part of it by cleaning up, it seems as though reasonable men would want it done.

Mr. Kluck: **If I have a horse that has glanders, or cattle with some disease that the law has said should not be tolerated, these animals are killed, why should not bees be destroyed for the same reason?**

President Smith: In the places where I have been allowed to take the work in hand, when I get through with it the parties themselves can do the work as well as I can.

Mr. Hinderer: When Mr. Smith came over there two years ago I did not know anything about foul brood. I told my neighbors, Boyd and Smith, about it. They said, "Mr. Hinderer just wants to raise an excitement." They showed me what looked like the nicest pieces of comb and said they wished I would look at that. But they had the worst cases of foul brood I ever saw.

He then related how their number of hives had been reduced, but still one of them bought more bees and brought them onto his place, thus making the conditions very discouraging for me and compelling me to take the trouble of cleaning up my own stands every year.

Mr. Hyde: I think in a case of this kind, where a man won't clean up, he must be treated as though he was a grade lower. In such circumstances moving the hives might be a help. Have moved them away and then moved back sometimes when clover was in bloom. Possibly there is danger from old hives, but I think the moth would clean them out.

Mr. Stone: Do you think moths will clean up these hives?

Mr. Hyde: I think so.

Mr. Kildow: I think there is danger as long as there is a bit of comb left. As long as there is a bit of comb left the cells are infected.

Mr. Becker told of his experience as assistant to the foul brood inspector in visiting the apiaries of Mr. Miller and Mr. Flannigan near Belleville and the result of his efforts was that some improvements had been made in those localities.

President Smith: Mr. Becker has gone as inspector to places where I had not time to go.

Mr. Kildow: You had better have two or three deputy inspectors appointed in my part of the country.

Mr. Kluck: It is said by some that when it is heated foul brood honey is all right. Honey that is so treated may be fed to bees. Honey that has been boiled an hour is safe, but I do not believe it is safe to tell people that.

Mr. York: No inspector advises destroying hives.

President Smith: I never advise destroying hives, but do advise boiling them out. They should be well aired. The air and sunshine purify them. Have also covered them with kerosene and burned them out.

TREASURER CHAS. BECKER.
Courtesy Geo. W. York.

Mr. Stone: I wish Mr. Smith would tell us again his method of introducing queens into the hive. He has done so before but it was not recorded and I wish he would either give it now or write it for publication in our report of this meeting.

President Smith: The case I was telling about, I had had trouble with the bees on account of fertile workers and I finally got so disgusted that I shook them out on the ground, brought my queen that I wanted to introduce, took her out of the cage, and dropped her into the cluster of bees on the ground and they went into the hive queen and all. Examining them several days later I found the queen had been busy laying eggs and was filling the comb with eggs. I have used this plan with other hives that did not have fertile workers.

Mr. Dadant: Did you ever try that metnod with queens that have been traveling a long time? We have not found that method would work with queens that had been traveling. Owing to the fatigue of the trip they are not so acceptable to the bees in the hive. I do not practice killing old queens, unless they are worthless.

Bees are very sensitive to smell. How do the bees know when the queen is lost? Some of them probably do not see her for a week at a time. I am of the opinion that bees know of the presence of their queen by the smell. Otherwise how do they know when the

queen is missing? They certainly do know it very soon. My opinion is that they know it by the absence of the odor of the queen. She has her own peculiar odor, which all the bees recognize. Bees have a stronger sense of smell than we have, and each queen has her own smell. If you remove her and give them another, however, in good condition, they will accept her. These are points necessary to know, I believe, in successfully dealing with bees.

Mr. Hyde: I have been practicing introducing queens. We bought about 50 or 60 this summer. When we could we moved the old hives away and put the new queen in with the swarm.

Mr. Dadant: I believe there is as great a difference in the temper of bees as in men. When you come to a man with a smile he will meet you in a much better humor than if you came sneaking like a thief. Let the bees make plenty of honey and all things going well in the hive and you introduce to them a queen in good healthy condition, they are much more ready to accept that queen than if you try to introduce to them a queen that is in bad shape when they are hungry. There are a great many things to be considered in the treatment of bees.

President Smith: When they are disturbed and you thoroughly alarm them as you do when you drop them on the ground they smell strongly and impart their own smell to the queen dropped into their midst.

Mr. Dadant: I believe that is correct. As I have said before, bees are very much like people. You take the case of a disaster like that of San Francisco. People become much more fraternal, thrown together in the common distress attending such conditions. It seems to me that is just the condition of the bees when you throw them out of their hive; and under such conditions they will be much more apt to accept a strange queen.

The question box was called for.

Mr. Becker: Before going on with the question box I would like to bring up a matter. Would it pay for the secretary to again issue report cards say two or three times during the year something similar to the National reports? Nothing interests me so much as to know if my neighbors are getting honey. When I get the "Journal" the first thing I look at is to see if others are getting honey or if I am the only one that is getting any. I think it would be nice to publish, monthly, a sheet showing the man who wants to buy honey where there is some for sale and the man who wants to sell honey where he can buy it. I am willing to pay fifty cents for this information. I would like to find out and keep posted as to what other bee-keepers are doing besides myself.

Mr. Kluck: That would do all right for Mr. Becker and for me if I sold to the home market; but I don't believe it would be of any benefit except for those who sell to the home market. Where we have a home market. We never had a better flow of honey than we had this year. It paid to ship to Chicago; that was something unusual.

Mr. Dadant: I am very glad that question has been raised. Though you are nearer the Chicago market, still it is a fact that the San Francisco and New York markets affect the price of your honey. We must take the condition of things throughout the whole country into consideration. Illinois is a big state, but a small territory in comparison with all the states in the Union. It is necessary that someone should secure reports from all over the United States. I do hope that Mr. York will think over the matter and find it practicable in some way to give us the conditions all over the country through the American Bee Journal. At the same time, I believe it is a good thing for our secretary to gather the information as suggested.

There are other bee journals, but their scope is not quite the same. We could depend upon the American Bee Journal to give us reliable reports from representative men all over the country. I would like to hear from Mr. York on this subject.

Mr. Becker: There are so many persons that do not keep themselves informed as to honey prices. They are selling two or three cents under the regular price. I know at one time John W. Bunn said to me: "I know where you can buy comb honey at 8 cents," and he told me the man's name, at Edinburg. I told him to buy it for me and I would pay him a cent a pound for his trouble. Honey was 15 cents a pound. In many places you can sometimes buy honey at 10 cents a pound when it is worth 14 and 15 cents.

Mr. York: Mr. Dadant has spoken to me before about this matter of securing information and the plan I have to

suggest is that of using a leaf of the "Journal" so arranged as to be easily torn out and with nothing on the other side that you would care to keep. On this space to be printed the questions which it is desired should be answered in order to secure the data from which the report may be made. These could be sent out at much less expense than even a postal card inquiry, and there would be practically no expense in sending them out, and they would go to a much larger number of interested people than if sent to only representative men. The information gathered in this way would be from all over our own country and from Canada as well. I had thought I would try this plan the coming spring.

There was some further discussion of the matter—as to the inquiries to be made and the number of times during the season that it would be advisable to ask for information, the efficiency of the present systems of correspondence as used by the National Association, the Orange Judd Farmer and the State Board of Agriculture.

The plan suggested by Mr. York met with unanimous approval and it was decided to leave the matter with him to work out as suggested, and it is believed that in course of time the system will prove of great value to bee-keepers. Questions will be printed on the perforated leaf in the back of the "American Bee Journal," which is to be torn out and returned within a specified time after the paper is received. After this has been tried a time or two, it may be found advisable to make a list of selected names, of those who show their interest by sending full reports, and who are located so as to give the best general results. In this way not only the men who have large apiaries would be heard from, but those who are equally interested, but have perhaps only a few colonies, and the interest and the benefit would be more general.

Mr. Baxter: Could you not make the experiment this fall?

Mr. York: I could get reports for the past season—whether there has been a large increase since spring; then in the January number could give the results of this inquiry. I believe that would be a good thing.

Mr. Kluck: If you sell to the home market you dare not report how large your crop is.

Mr. Dadant: I take exception to that. We set a price on our honey. If they say they can get it for less from other bee-keepers we say they may get it. If bee-keepers will set a fair price, based on the season and the supply, they will get their price.

Mr. Baxter: Everybody knows just what I harvest.

Mr. Kildow: At my place they know what I have and I set my prices. If they don't want to pay it they go somewhere else.

President Smith: Dr. Miller sets his own price and pays no attention to what others do.

Mr. York: He sells at Pittsburg.

The question box was again called for, the questions having been handed to Mr. York, he read them.

Question No. 1.

Why doesn't a colony accept a queen after having a drone laying queen?

Mr. Dadant: They do.

Mr. Sauer: Well, it has been my experience that they would not. Last spring I tried to introduce two different queens and they killed them. They finally dwindled down so I just put them into one hive. At the time I put in the second queen they were pretty scarce.

Mr. Dadant: We never have had that trouble when the old queen had been removed. Are you sure there was not an old queen still in the hive? I believe they must have had two queens and there was one there yet.

Mr. Sauer: I looked and could not find any. And the bees were pretty scarce by the time I looked the second time. I felt sure there was no queen there.

Question No. 2.

Is it the queen that causes a colony to swarm or the bees that force the queen out?

Mr. Dadant: I believe it is mutual; both want to swarm.

Question No. 3.

Why leave honey on the hives until ripened by the bees?

Mr. Kildow: If you are looking for good honey—if you do not care for loss —leave it on.

Mr. Kluck: Honey that is sealed is ripe.

Mr. York: A great deal was said on this subject at the National Convention at Harrisburg. It was argued that much injury was done by taking honey from the hives before it is ripened. It should be left until it is thoroughly ripened.

Mr. Dadant: While we are on this subject it may be well to read an extract from the American Bee Journal of this month.

HONEY RIPENED ON HIVES, ETC.

By F. Greiner.

In the October number of the American Bee Journal it is said that honey improves if left on the hive to the end of the season. Thousands of bee keepers of long experience, here and abroad, have said so again and again, and green honey has been severely condemned ever since I kept bees, if I remember rightly. We all know that green honey not only lacks in body. but it has not the fine flavor of well ripened honey of the same source; it is therefore very important that the honey producer exercises care in extracting. The notes of warning Mr. Townsend and Mr. Hutchinson sound should be heeded, and we should at least not extract from the combs till all sealed. If found necessary to extract from unsealed or partly unsealed combs, such honey should be kept separate and sold for less money. So far, so good.

I would now ask the question: Has any extensive experiment ever been made which goes to show that honey, after being sealed, improves with age if left on the hive, say to the end of the season? I am aware that comb-honey has sometimes imparted to it a peculiar —let me call it hive-flavor—if left on the hive an unduly long time. This flavor is somewhat objectionable to many, but possibly not so to some others. I very much doubt, however, that the body and general qualities of honey can be improved after it is sealed. I have had honey sour on the hive during the summer season and raise the cappings. The bees sometimes remove a part of such honey from those cells which appear to contain the worst honey, but even that which is left in those combs by them has a sour taste and smell. The bees seem to have no way to improve it even if left on the hive to the end of the honey season, as Hutchinson. Townsend and Dadant recommend. It is therefore necessary to go a little further in the selection of our combs before they go to the extractor. The combs which contain sour honey have a varying per cent of unsealed or open cells sprinkled in among the rest. Seldom we find more than one unsealed cell in a place. Look out for such combs. Taste of such suspicious honey. If the slightest tang can be detected about it, reject it. I know of no way to improve such honey, and the only possible use that can be made of it is to put it into the vinegar barrel. It may also do for feeding bees in the early spring, but I do not know. I should want it all used up in brood-rearing if I used it in this way.

As different conditions alter cases, it would not do for every honey-producer to follow the advice of even such bee-masters as Mr. Townsend and Mr. Hutchinson to the letter, and leave all his honey on the hive until the end of the honey season, from more than one point of view. What may be proper and best for one bee-keeper may be entirely wrong for another. Located where I am, the early honey coming from the tulip tree is very dark, more so than even buckwheat, and decidedly unpleasant. The red raspberry honey and the earlier fruit-bloom honey is also objectionable on account of flavor and color. If I left on all extracting combs from the beginning of the season to the end, my honey would be very poor as to flavor and color. A sorting out of the different honeys would be impracticable, and I would be the loser in the end, for color always stands first, flavor next, and body last; this, at least, is my experience, absurd as it may be.

Now, what is to be done in such a case? If extracted honey must be produced we must extract before the good white honey comes here about the last of June, then again as soon as this flow stops. We have to be on our guard so as not to have any late dark honey stored in the supers with the white. It is a very unpleasant situation. I realize how much more agreeable it is in a location where all honey gathered is practically of one color and flavor. Virginia is one of those spots favored along that line; I have an out-yard there where practically only white honey is gathered.

In localities where it seems necessary to extract several times to keep the different honeys separate, naturally some green honey will have to be extracted. This answers nicely for feeding to comb-honey-producing colonies, and may be turned to good account in this manner. The washings from cappings can also thus be utilized if not thought best to make into vinegar.

As has been said, honey that is

sealed is sometimes found in such condition that the ripening process does not improve it.

Mr. Kluck: That may be the case where a man lives close to a cider mill.

Mr. Dadant: I am really ashamed to speak so many times, but I wish to say that the sealing of the cells by the bees is not always evidence that the honey is ripe, neither is its not being sealed always an evidence that it is too thin and unripe. The quotation which I have read from Mr. Greiner in the American Bee Journal evidences the fact that honey is sometimes sealed by the bees when it is still unripe, especially in the case of basswood honey is this true. Some grades of honey is evidently much slower to ripen than other grades. But bees are very much like human beings, they are not infallible and their judgment errs. They may seal unripe honey and may leave ripe honey unsealed. There may be a heavy flow of honey, suddenly stopped at the end of a season by a storm and a frost. Much unsealed honey is in the combs. But from that time on the bees find nothing and the production of wax is stopped as suddenly as the production of honey. So the bees leave the remainder of the honey unsealed though it will be after a few days just as ripe as any sealed honey they may have. But there is no doubt in my mind that in this State, honey which is left on the hives to ripen will be much better than artificially ripened honey.

Question No. 4.

Should we extract honey from the brood chamber at this time of the year when bees have plenty to spare?

Mr. Kluck: Some advocate extracting honey from brood chambers, but I don't believe it will pay.

Mr. Baxter: I have done it, but I don't do it any now more. I have five or six hundred combs of honey laid away for use next spring. I think it will pay to keep it.

President Smith: I have done it when there was a very heavy flow and they would have them filled again in a few days.

Question No. 5.

What is of more importance to bee-keepers at present than a foul brood law in Illinois?

Mr. Kildow: As it is almost time to adjourn I move that the consideration of that question be left until tomorrow morning and that we now adjourn to nine o'clock a. m. tomorrow.

Which motion was carried and the meeting adjourned.

MORNING SESSION, NOVEMBER 20.

President Smith called the convention to order as per adjournment of the previous day and said that the first matter to be taken up was the discussion of the question as to what is of more importance to the bee-keepers of Illinois at present than a foul brood law in Illinois.

"Lena, Ill., Nov. 28, 1907.

"Mr. President:-There is nothing that I know of at the present time that is of more importance to the bee-keepers of Illinois than to have a foul brood law passed similar to or like the Wisconsin foul brood law. There is no foul brood in my vicinity that I know of but in the eastern part of the territory of the Northern Illinois and Southern Wisconsin there has been complaint for the last few years of something ailing the bees and it may come to my place. There are some persons who keep a number of colonies who only get honey every three or four years who never tend or look after their bees, who would do nothing to cure foul brood and no persuasion or coaxing would avail anything. I would then be just as these brethren here, who have foul brood and neighbors have it but will not clean up. It is very expensive for a bee-keeper to clean up every year and get any surplus of honey or bees as long as his neighbor, who don't care, is not compelled to clean up too. Now, we want a law that the foul brood inspector has police or constable powers to go in on a man's premises and inspect his bees and, if he won't clean up, that the inspector has power to clean or compel him to clean up. We, as bee-keepers, must go before the legislators till we can get them to see the necessity of a foul brood law just the same as glandered horses or quarantine for small pox, scarlet fever or diptheria. or any other contagious diseases. I have been working and lending my influence for some years for the law. When foul brood comes in the neighborhood it is a very late hour to get interested in a foul brood law. Let us all put our shoulders to the wheel to turn out a foul brood law when we go home. Make it a point to personally see our representatives of our respective dis-

tricts, tell them our needs and wants, and in time we will surely accomplish it. Just how foul brood started I do not know. How did small pox start? But we all know how contagious they both are, only small pox can cure itself or get well again, but foul brood, without treatment, is fatal to the colony, and all honey stored in a cell where there has been foul brood is fatal if carried to another hive by the mature bees, is fatal to all the brood that consume any of the honey.

N. A. KLUCK.

Mr. Dadant: That question, it seems to me, is very easily answered in just one word—nothing. But to get at what we want, to be practical, it may not be out of the way to discuss the means of accomplishing this—the passage of such a law.

It seems to me that what is necessary is to have positive testimony as to the damage done by foul brood, from parties who have suffered from it; that we should have the names and addresses and affidavits of such parties. With such testimony as this we could go before the legislature with something definite and having gotten a committee to report in favor of the law those who have influence will be more strenuous in working for it.

One thing I would like to ask in regard to foul brood.

You have said as state inspector that foul brood is apparently permanent in some localities; that you find it in the same spots over and over. We have never seen it where we are. But Chas. F. Muth of Cincinnati spoke to me many times about its recurrence in the vicinity of Cincinnati after it was thought entirely stamped out. To my mind, there is a possibility of the recurrence of such a disease through some other agencies than the honey bees and this may be why it re-appears after destroying it.

President Smith: This matter has been suggested by members of the Legislature who have argued that bees in the woods, in hollow trees, may carry the disease and that therefore it is useless to try to stamp it out.

Mr. Dadant: Such men surely do not show very much judgment. It is now proven that yellow fever is caused by a certain mosquito, and yet no one has ever thought of giving up trying to prevent yellow fever on that account. Small pox was found to be a disease of cattle and that very fact helped to prevent it in the human race by inoculation. We need foul brood inspectors not only to stamp out foul brood, but to search for the causes of it, but as long as our legislators will deny us, we can make but feeble efforts at stamping it out. When the cause of a disease is known, half of the work is done towards stopping its ravages. But there is no doubt that the most important requirement is to cure the colonies of bees that are infected.

Mr. Kluck: The only thing for us to do is to continue to ask for a law such as Wisconsin has had in force for a number of years. We want to be able to compel those who have foul brood in their apiaries and pay no attention to it, to treat it as we do. We must all insist on the passage of such a law.

Mr. Dadant: Most of the states around us have such laws, even Missouri passed a law last year. It is of the utmost importance that those of our bee-keepers who have had to suffer from the vicinity of careless bee-keepers who fail to treat diseased hives should make affidavits of these cases and should unite with others to insist on securing a law. We have the Inspector and we can use the funds of the Association for stamping out the disease, but our Inspector should be empowered to treat the disease wherever it exists; that is the only thing we lack. Our previous failures in the Legislature show us that this law can be carried through if properly worked.

Mr. Smith: There is no doubt that a law will be passed just as soon as we make a sufficiently united effort. Illinois cannot much longer remain behind other states in this respect. I believe that just as soon as the Inspector obtains authority to examine suspicious colonies wherever they may be and is thus enabled to point out the disease and the cure, with power to enforce his instructions, the disease will be practically stamped out. As it is, he has no authority whatever and can only act where he is called by the owners themselves. But it does only little good to cure one apiary when there are diseased bees in the close vicinity.

The next order of business being the election of officers for the ensuing year, the convention proceeded to ballot for the same, with the following result:

Officers for 1908:

J. Q. Smith, President and State Foul Brood Inspector, Lincoln.

Vice Presidents:

1st—Geo. W. Cave, Kirkwood.
2d—W. H. Hyde, New Canton.
3d—A. L. Kildow, Putnam.
4th—S. N. Black, Clayton.
5th—C. P. Dadant, Hamilton.

James A. Stone, Secretary.

Chas. Becker, Treasurer, Pleasant Plains.

On motion the dates for the next annual meeting were fixed for Thursday and Friday, November 19 and 20, 1908, and the place of meeting the Capitol Building, Springfield.

At the close of the election the convention adjourned to meet again at 1:30 p. m.

AFTERNOON SESSION, NOV. 20.

The members of the Association were enjoying a social interchange of ideas and renewing acquaintances, when at 2 o'clock President Smith said:

Gentlemen, we will come to order for a brief session.

Mr. Becker: There is one thing I wish to speak about that I think would be a good idea. Our reports seem to be small, and we have no essays nor any papers. I think we ought to have a report from every bee-keeper who is a member of our Association, stating the number of colonies he had last spring. the number this fall and the number of pounds of honey produced during the season. I know that when it has been a bad year bee-keepers do not like to make such reports, but I think we ought always to make reports in a time like this. I move that the Secretary send cards to the members not present asking them to make report and that the members here present fill out a slip giving this information and also stating the condition of the bees at the close of the season.

Mr. Becker's motion received a second and was put to vote and carried unanimously.

Mr. Cave: I had about 140 stands in the spring; when clover came in bloom had only about 100, but the number increased again to 138; I hardly know how to write up a report.

It was decided that the number of colonies on hand when the bees began to work should be the number given, then the increase, if any, or number on hand in the fall.

The following are the reports made to the secretary by the members in attendance at this session of the convention:

Mr. Stone:
Number of colonies in the spring..... 40
Increase 5
Comb honey produced, lbs..... 300
Extracted honey produced, lbs.....1000
Bees in fine condition for winter.

Mr. Cave:
Number of colonies in the spring..... 100
Increase 38
Comb honey produced, lbs.....1200
Extracted honey produced, lbs..... 300
Bees in good condition.

Mr. Hinderer:
Number of colonies in the spring..... 34
Increase 12
Comb honey produced, lbs.....1900
No extracted honey.....
Bees in good shape for winter with plenty of honey.

J. Q. Smith:
Number of colonies in spring..... 24
Increase 7
Comb honey produced, lbs..... 600
Extracted honey produced, lbs..... 400
Condition good.

James Poindexter:
Number of colonies in the spring near about 45
Increase 5
Comb honey produced, lbs..... 250
Extracted honey produced, lbs..... 160
Bees in splendid condition; have never seen them as strong as they are this fall.

Wm. H. Hyde & Sons:
Number of colonies in the spring..... 325
Increase 75
Comb honey produced, about, lbs.....3750
Extracted honey produced, lbs.....6000
Bees in good condition.

John Sauer:
Number of colonies in the spring..... 5
Increase 12
Comb honey produced, lbs..... 450
No extracted honey.....
Went into winter quarters very heavy.

D. P. Earnest:
Number of colonies in the spring..... 28
Increase 3
Comb honey produced, lbs..... 550
Extracted honey produced, lbs..... 160
Bees in good condition for winter.

Charles Becker:
Number of colonies in the spring..... 39
Increase 13
No comb honey.....
Extracted honey produced, lbs..... 600
Bees in good condition.

Louis Werner:
Number of colonies in the spring..... 140
Sold 10
Increase 20
(Making present number 150.)
Comb honey produced season of 1907, lbs. 2000
Extracted honey produced, season of 1907, lbs 500

Mr. Becker: I must leave for my train in a few minutes, but would like to say this yet before I go. I move

that the Secretary be instructed to ask some of the prominent bee-keepers in the state to furnish papers on subjects which he may suggest to them as of special interest at this time, for publication in our Annual Report.

Mr. Stone: I would like to add to that motion that not only prominent bee-keepers be invited to do this, but that the invitation is hereby extended to all the members, especially you who are present here, to write papers for publication in the report.

Mr. Hinderer seconded Mr. Becker's motion as amended by Mr. Stone and it was carried.

Mr. Becker: There is one thing I would like to say yet. I think we ought to have an addition to our premium list and that is there ought to be a premium offered for any other variety of honey outside of those named in the list. They ought to be willing to give us this additional premium. There is this much about our exhibit—if you were to take the honey out of the dairy building this year there would not be anything there hardly worth seeing. I have been at the State Fair every year since it has been located at Springfield and I want to say that the exhibit of honey there this year was certainly fine. With four such fine displays as were there it was hard to tell which one could be left out of the awards. I think if the Fair Association would look at the matter rightly they would give us an increase. Our Superintendent, Mr. Cater, is a very nice man, but he is timid about going before the board and afraid to ask for an increase in his department. They do not give nearly as much money as the department should have.

Mr. Stone: When I asked for an increase Mr. Cater said the Board had given him the amount to be used as premiums in his department, $25.00, and he gave us all of that $25.00 for our show, which I thought was very good of him.

President Smith suggested that a sweepstakes premium be made and the amounts to be offered be $10, $7, and $5, but after talking the matter over a little further it was decided to ask only for "case of any other variety of honey, 12 to 24 pounds" and make the amounts offered in first, second and third premiums $4, $3 and $2.

Mr. Werner: I wish the Fair Association would build a cage for the exhibit next year. If they will allow us to have it I will agree to do the work and will furnish the bees to work with.

It was decided that such an exhibit be had at the State Fair next year.

On motion the convention adjourned to meet in 1908, Thursday and Friday of the same week in November, the date previously determined upon.

Do We Need a Foul Brood Law?

Lincoln, Ill., March, 1908.

Foul brood bacillus alvei is a fatal and contagious disease among bees, dreaded most of all by bee-keepers. The germs of disease are either given to young larval bee in its food when it hatches from the egg of the queen bee, or it may be by contagion from a diseased colony, or pollen in such combs. If in any one of the above cases the disease will soon appear, and as the germs increase with great rapidity, going from one cell to another—colony to colony of bees and then to all neighboring apiaries—thus soon leaving whole apiaries with only diseased combs to inoculate others. The only visible hindrance to the successful expansion of the bee industry is the prevalence of Foul Brood. Most all of the honey producing states have Foul Brood Laws, and the bee keepers of Illinois need the same protection as other states.

In view of the widespread distribution of infectious foul brood among the bees of Illinois, it is of the greatest importance that a Foul Brood Law should be passed by the law makers of our state; in my experience as inspector I find that the practical bee-keepers who are all the time exposed to the careless or ignorant bee-keepers, suffer from such parties. They may take great pains and incur considerable expense to keep their bees free from the disease, but if the careless neighbor that has only a few hives and don't care whether his bees live or die, and won't clean his bees up when they are diseased, what can the practical bee keeper do to protect his bees from the infection? It is virulent as small pox and if he can not persuade the neighbor to clean up, it will be but a short time until his whole apiary will be diseased and perhaps just at the honey season, when it is the most fatal to securing a honey crop.

A Foul Brood Law will not work a hardship to any one but will be a great benefit to all. In my experience in

traveling over the state I have found that a bee-keeper can not protect his bees without the help of a law that will compel the careless, small bee keeper to keep his bees in good condition. Ilinois is a good honey producing state and has thousands of bee keepers who have many thousands of dollars invested and should be protected as most of them are tax payers, and are composed of the very best citizens of the state.

J. Q. SMITH.
State Foul Brood Inspector.

Platteville, Wis., Feb. 18, 1908.

Mr. Jas. A. Stone, Springfield, Ill.

Dear Sir:—As State Inspector of Apiaries of Wisconsin for past eleven years, have several times seen in Wisconsin ruined, diseased apiaries the same contracted from foul brood apiaries in Illinois. I hope for health and good of all, especially Illinois bee-keepers, you will soon have such laws as will protect an important industry. You must have a law to prohibit sale or exposure of all bee diseases, a law that gives the Inspector authority. I would not serve without it. What use of a law to appoint City Police with no authority? Or to elect any officer without authority? If the unlawful orders him "hands off" he must obey same. This is the present kind of Illinois Foul Brood Law you have. If an Illinois bee-keeper does not permit inspector to inspect, or treat or give advice, he must keep "Hands off." Laws are for the unabiding citizens, to compel obeyance for public good. A in Illinois keeps bees, and by his careful management produces tons of one of the healthiest of foods, and thus supports his family. Near him lives a careless party whose bees are diseased, many are dead with disease endangering the support of many families, and today no Illinois law to stop the same. You must have law to appoint an Inspector with authority and not until then will diseases of bees in your State be under control, and a development of one of the great agricultural industries of the State with its car loads of cheap and purest of all table foods. An officer does not have to shoot every man he arrests. The law of authority is respected. So in Wisconsin, with authority to inspect each apiary, give instructions how to treat the disease, and to review the same after reasonable time. If nothing has been done and case requires, I may burn all diseased bees and combs to prevent the spread of said disease. But once in my eleven years' experience has it been necessary to resort to this authority to stop sale of diseased bees and then under quarantine. I hope your success in getting the much needed law.

Yours truly.
N. E. FRANCE.

San Jose, Ill., Jan. 23, 1908.

Mr. Jas. A. Stone,

Dear Sir:-I know that European foul brood has about cleaned me out of the bee business, as also all my neighbors. It is the same old story. The farmer with a few bees won't take care of them. Lets them die, then leaves the hives to be robbed out by other bees. I have lost over one thousand dollars in the last three years with the European foul brood. My neighbors have lost almost all their bees now. So I think that if there was a law with a penalty attached so the inspector had some authority we could stamp the disease out.

Yours truly,
FRED TYLER.

New Milford, Ill.

Mr. Stone.

Dear Sir:-At the late annual meeting of the Northern Illinois Bee-Keepers' Association a resolution was offered and unanimously passed requesting the State Association to do all in their power to get a law passed by our next Legislature similar to the Wisconsin Foul Brood Law, which has proven so efficient in that state for the past ten years.

Yours truly,
B. KENNEDY, Sec.

Spring Valley, Ill., Jan. 20, 1908.

James A. Stone, Secretary of Illinois State Bee-Keepers' Association:

Dear Sir:-In regard to a foul brood law, I think it would be a good thing. I have had some experience in foul brood. It took me three years to get entirely rid of it. It is not very difficult to cure but if you have a lot of go-as-you-please bee-keepers in your neighborhood like I had, it is a hard proposition, indeed. But a foul brood law would compel them to get their bees inspected and cured, if diseased.

Yours,
PETER J. NORBERG.

D. C. McLEOD, Pana, Ill.

(In his 81st year.)

Foul brood law ought to be a thorough one. I had a fight with it for ten years before I got rid of it 15 years ago. I tried most every thing—but fire is a sure remedy. Lost about 200 colonies. Had about 150 colonies when it commenced. Sent samples to A. I. Root in Ohio, but, having never seen foul brood, he could not give me an answer, but thought that was it. Dr. Howard thought it was, to the best of his knowledge. So I fought it to a finish. I am not able to do much now, as I am in my 81st year.
February 18, 1908.

D. C. McLEOD.

Davis, Ill., Jan. 24, 1908.

There should be a foul brood law that would speedily and energetically eradicate the disease wherever found; for if diseased colonies are not cured at once all colonies in the neighborhood will get the disease in time.

J. C. FRANK.

Atwater, Ill., Feb. 1, 1908.

Mr. Jas. A. Stone,
Springfield, Ill.

You ask me to tell all I know about the need of a foul brood law. I must confess it ain't much, but there are several reasons:

1st—To keep from spreading one of the most contagious and deadly diseases known to man among bees.

2d—To keep one's bees from dying, who is not acquainted with the disease.

3d—It would be a shame for some one who is careless with his bees and keeps them in old box hives to get the disease and let it spread to someone who keeps nothing but a fine grade of Italian bees in good frame hives and for this last man to lose all of his fine bees just on account of the first man's carelessness, or because he was too ignorant to subscribe for a good bee journal or two.

Wishing long may the Illinois State Bee-Keepers' Association live and prosper, I will close.

M. A. JONES.

Homer, Ill., Jan. 26, 1908.

Mr. Jas. A. Stone:

Will say regarding foul brood. I have kept bees for over 20 years, but with poor success on account of foul brood. It has twice wiped out about all the bees I had.

There are but few bees left in this part of Ilinois. I tried to cure foul brood by the transferring plan.

I see J. Q. Smith is president of the State Association and also State Foul Brood Inspector. When he inspects bees who pays the expense?

I had twelve weak colonies left last June, all affected with foul brood, and made three colonies from the twelve. I now have seven left, but foul brood still exists about one mile from here.

JACOB SEIBOLD.

Fulton, Ill., Jan. 29, 1908.

Jas. A. Stone,

Dear Sir: I hope we will be able to get a good foul brood law soon. While the present law has been a great help yet it seems to me greater good could be accomplished if we had a more strict law and a little more money with which to pay more inspectors.

I know that in Whiteside county foul brood has caused the loss of thousands of dollars to its bee-keepers. My own loss I estimate at over $500.

I can get rid of it in my own apiary but I have a few careless neighbors, and even some who declare there is no such disease as foul brood. "Just bad seasons is all that ails the bees," they say. Such persons leave their old dead colonies exposed and are a constant source for spreading disease. One such neighbor has only one colony left out of 125 or so. I don't believe he will bother much longer as the moths and mice have pretty well cleaned up his old hives. Thanks to the pests.

The disease is in this locality to stay unless we can get a more efficient law.

We need one that will compel the inspection of each apiary and also that will compel each bee-keeper to use due care to prevent the spread of the disease. I earnestly hope such a law may be enacted.

Respectfully,

W. G. LAWRENCE.

Ava, Ili., Jan. 23, 1908.

Mr. Stone:

I had foul brood for 6 years among my bees, and lost nearly all of them. But for 10 years have had no sign of it. I believe there is no cure for it but to take the hive's contents away from the bees. I tried that; it cured.

We need a law to make people keep all decaying brood out of the reach of

bees, by destroying it, and one to compel people to destroy the contents of foul brood hives. And if they don't know the disease, should have an inspector's instruction. I don't believe the hive is the cause as I have used hives in which it had been cured—and no after trouble. Foul brood is reported 4 or 5 miles east of me now, near Vergennes.

I think foul brood first started with my bees from their having access to a pile of decaying brood from transfer scraps, in a sunny place, at least no one else near me had any foul brood so far as reported.

A. B. PHOENIX.

Meredosia, Ill. Jan. 21, 1908.

I am greatly in favor of a foul brood law and say that bee-keeping will never be conducted safely on a large commercial plan until we get the much needed legislation. For instance, take my case. I have approximately $500 to $600 invested in bees, honey house, bee supplies and other apiarian tools, and have taken pains to inform myself as to the industry. Suppose a neighbor has 2 or 3 colonies and they have foul brood. So have mine. I rid my apiary of the disease only to have them infected again from my contrary, ignorant neighbor, who has only $10 or $12 invested and doesn't believe such a disease exists.

What we need is a foul brood law making the inspection of bees compulsory. It will be a great benefit to all the bee-keepers and place the industry on a safe and sane basis.

Yours respectfully,

FRED H. MAY.

Oakglen, Ill., Jan. 18, 1908.

Secretary Stone:

Dear Sir: Foul brood laws are needed pretty badly. Most every apiary in this part of the country has foul brood. I am troubled with it most every year and have to cure it each year only to get it again from my neighbor bee-keepers that don't know beans about foul brood. So I have it to fight every year.

Yours truly,

JOHN EENIGENBURG.

Woodhull, Ill., Feb. 17, 1908.

Dear Sir: There is foul brood near here at Mr. Reynolds' place, but I have never had any trouble as yet. But should I have, I would shake them into a clean box for 24 hours then place them on new frames of full sheets in a hive that has been boiled in lye water, and thoroughly cleaned and dried. Then never blow smoke into a hive that has young brood in it. For what can a mature larva stand of smoke? I think that smoking them causes foul brood more than any thing else.

Yours truly,

A. N. COOKE & SON.

Freeport, Ill., Jan. 31, 1908.

Mr. Jas. A. Stone:

Dear Sir: We have no foul brood in our community that I know of, but I think we ought to have a foul brood law like they have in Wisconsin, where the Inspector has the right to go into any bee yard to examine the bees, and, if they have foul brood, to cure them if possible, and, if too badly affected, to have power to destroy them. Otherwise a foul brood law does us but little good.

Yours,

LEWIS SCHMERTMAN.

Franklin Grove, Ill., Jan. 23, 1908.

We need a foul brood law for the protection of the bee-keeper who is working for the money and the pleasure there is in the business. In the first place, if we want to keep our bees in working condition when there is foul brood in the neighborhood we must be treating them every year. We need the law for the careless and ignorant owners of bees who think that all there is to do with bees is to put on sections and let the brood nest go with combs built together or any way. So no one except an Inspector can know if there is foul brood in the hive until it gets far enough to detect by the odor and then the owner thinks his bees were just lazy and for that reason made no honey this year. Objects to any one meddling with them. Now suppose this man's bees dwindled down and finally die in the spring from foul brood. He looks in the hive and, if there is some nice looking honey, he cuts out some to eat so as not to derange the old combs too much, then fixes the hive up with the entrance open to catch another swarm of bees. Now all bees within reach of that hive will rush in and rob the honey out of the combs and carry it home with the foul brood germ. In many hives, then, to get rid of it is to

treat all, and the damage is about as much in dollars as losing your bees right out and out. It is impossible to keep our bees away so it is spread out to the four winds of the world and we have no protection. What we need is a good foul brood law to stop the careless spread of the germs. I don't feel able to enter into this Association, but I think it needs my dollar to help establish a much needed law.

J. F. GROUP.

Coatsburg, Ill., Jan. 21, 1908.

Dear Sir: We (the bee-keepers) are in need of foul brood laws to stamp out the disease known as foul brood and to prevent the spreading of the disease as it is the most dangerous thing the bee-keepers have to contend with.

F. A. MEISE.

Morton, Ill., Jan. 19, 1908.

Dear Sir: I am not personally acquainted with foul brood, but I do think my bees have it now. I am not a very experienced bee-keeper. This is my third year, so I have a good deal to learn yet. Bee-keepers surely need the protection of a foul brood law.

Yours truly,

HERMAN J. GEIER.

Spraying During Fruit Bloom.

Spring Valley, Ill., Jan. 20, 1908.

I lost bees heavily during fruit-bloom five years ago. I thought they were poisoned though it would be hard to prove it, but I know there was a man going round spraying fruit trees in the city at the same time.

PETER J. NORBERG.

Morton, Ill., January, 1908.

It will simply poison the bees if anything like Paris Green is used to spray. Some of us use soap suds and coal oil. I do not think that will hurt the bees.

HERMAN GEIER.

Mapleton, Ill., January, 1908.

Yes, several years ago I lost sixteen colonies one year and the next seventeen from spraying.

GEO. B. SLACK.

Ava, Ill., January, 1908.

My bees were reduced from crowded to weakness in both 1904 and 1905 after spraying by neighbors.

A. B. PHOENIX.

Spraying.

Ava, Ill., Jan. 23, 1908.

Mr. Stone: The greatest evil to us down here is spraying in full bloom of apple and peach. The bees will be nearly at swarming stage and then in a few mornings the old ones are gone and the young can't keep heat and food ready. They then have to build up again and that takes so long clover is nearly over before they are ready to give us surplus that we fail and if fall bloom fails we have no honey. Stahl pushes the spraying at that time and they heed it in spite of evidence other ways.

A. B. PHOENIX.

Meredosia, Ill., Jan., 1908.

Very little spraying done around here, but it is a deadly weapon in the hands of an ignorant fruit grower.

FRED H. MAY.

Report of the Chicago-Northwestern Bee-Keepers' Convention.

The 17th annual convention of the Chicago-Northwestern Bee - Keepers' Association was held in the Briggs House, Chicago, Dec. 5 and 6, 1907, with Pres. George W. York in the chair.

Mr. Dadant, Mr. Kannenberg and Dr. Bohrer were appointed as an Auditing Committee.

Dr. Miller, Mr. Kimmey and Miss Chandler were appointed a Committee on Memorials.

Cooking Sugar Syrup for Feeding Bees.

"Is syrup best cooked for bees?

R. L. Taylor said not to cook it if fed early enough.

The question arose as to whether to use a double cooker. Some said "No," but others said "Yes, if the one that does the cooking is careless, but usually it is not necessary."

Mr. Taylor advised feeding earlier, the food not heated, when the bees will digest it. Dr. Miller said if fed late, feed warm and thick, but it is much preferred to feed early, as the bees will work it over better.

E. J. Baxter said it was not necessary to have it boil at all.

Dr. G. Bohrer had fed bees 40 years ago. with warm feed. He claimed boiling was not necessary. He fills shallow combs in a super with syrup, and the bees carry it down and seem to do well.

Sugar Candy for Bees.

Dr. Bohrer said scorching the feed rendered it poisonous to bees.

Dr. C. C. Miller said creamed candy will stay soft.

Mr. Taylor asserted that if soft the bees will use it all, and there will be no less waste, while if hard and grainy there will be a waste.

Mr. Dadant advised pouring candy over coarse paper and then break it up before too hard.

Dr. Miller asked Mr. Dadant why they had made no candy for a long time. Mr. Dadant replied that the bees had not needed very much lately. Bees go to the water-trough a great deal when fed on candy. Candy is an emergency food.

Dr. Miller said that he had fed honey to the bees in winter, and prefers it to candy.

Protecting Bees for Winter.

Mr. Wm. M. Whitney stated that he winters bees out-doors, with double-wall hives and planer shavings between.

Secretary H. F. Moore said he uses cork-dust in an empty body set over the hive.

Mr. Baxter declared the Dadant hive a success always; with a mat over the top of the hive, and double packing of leaves all around.

Dr. Miller said that paper has been a success usually, but a Canadian claimed it was always a failure with him and all his acquaintances.

J. C. Wheeler said leaves had been a failure with him. He thinks the sunlight helps the bees.

Mr. Whitney told the convention that he would keep the packing on during May in his locality (Southern Wisconsin), with the double-walled hives. He said that bees in double-walled hives build up sooner in the spring than those in single-walled hives, because the former are warm all the time, but the single walled-hive gets too cool part of the time.

Mr. Taylor said he had made a careful experiment with a number of swarms. He set the hives close together and surrounded them with boards and then packed with sawdust between. He left them until June, and found that the bees not protected had wintered the best. The main point is to have sound stores of honey.

Mr. Baxter claimed that it is not the stores. In 1884 and 1885 he had a very severe winter. He had 3 yards.

Mr. Taylor said he winters bees altogether in the cellar; that those in single-walled hives do better out-doors than in chaff hives. Sound stores are the most important thing.

Mr. Whitney asked whether fall honey is bad.

Mr. Taylor replied that fall honey is poor and thin, and mixed with pollen.

Dr. Miller said locality is very important.

Mr. Dadant also said that locality is very important. He said that he wintered bees out-of-doors. The weather in his locality is warmer than in Northern Illinois. Out door wintering has been better 4 out of 5 years.

Mr. Whitney said that Mr. Taylor should use planer-shavings instead of sawdust, out-doors.

Cellar-Wintering of Bees.

Dr. Miller asserted that bees should be put into the cellar the day after the last day that is fit for them to fly in the fall.

Franklin Wilcox said he has put his bees into the cellar from the 10th to the 25th of November. He has carried them into the cellar with a falling temperature.

Mr. Taylor wants no breeding in the cellar. Rearing of brood runs down the strength of the bees. He said he put his bees into the cellar Nov. 21, on a cloudy day, and leaves the bottom-boards on the summer stands.

Dr. Miller declared a flight is very necessary before putting bees into the cellar.

Mr. Wilcox said a flight is very necessary immediately before putting them into the cellar.

Twenty reported that bees breed in February.

Mr. Dadant agreed with this.

Dr. Bohrer said that the cellar should be as dark as a dungeon all the time.

Dr. Miller said his cellar is light most of the time. He believes that air and light together, and ventilation are necessary. There is a furnace in his cellar.

Mr. Wheeler has had experience with bees in the cellar with no furnace, and also with a furnace. He claims bees winter well even where combs are mouldy.

Supers for Comb-Honey.

Dr. Miller claims that T-Supers are best for comb honey.

Mr. Taylor said that wide frames are best.

It was decided that the secretary arranged to have supers of different sorts exhibited at the next annual meeting, at an expense not to exceed $1.00 each.

On motion it was ordered that the Chicago - Northwestern Bee-Keepers' Association join the National Bee-Keepers' Association in a body, at 50 cents per member.

The following officers were elected for the ensuing year: President, George W. York, of Chicago; Vice-President, Miss Emma M. Wilson. of Marengo; and Secretary-Treasurer, Herman F. Moore, of Park Ridge, Ill.

Best Honey Section to Use.

Mr. Taylor said the 4-piece section is the best because made of poplar. It is open clear across the top and bottom. He would use 1-piece sections if they would open clear across.

Dr. Miller used to use 4-piece sections but now uses 1-piece sections, and prefers them.

In the discussion that followed it was claimed by some that you don't break so many 4-piece sections; that you can make the 4-piece more easily, and that you can use any kind of wood in the 4-piece sections.

Mr. Whitney says 1-piece sections spring out of "true" badly, for the groove is too tight when folded.

Mr. Taylor said there is a machine for putting up the 4-piece sections, and he will give any one the address of the maker.

Dr. Miller said he will hold onto the 1-piece sections as long as he can get them. He claims that wetting the back of the grooves toughens them.

Mr. Gilbert agreed with Dr. Miller.

Dr. Miller told how he wets sections with a kettle of hot water, wetting 500 at a time, in the crate that they are packed in.

Theo. Fluegge said that he takes out the sections from the crate, stacks them upon holders, and pours water from a kettle upon the backs of the grooves.

Why Do Bees Ball Their Own Queens?

Dr. Miller said the bees ball a queen to protect her.

Mr. Taylor said they ball a queen to keep her from getting away, as when a strange queen is introduced.

Mr. Whitney said that on introducing a queen he found a queen balled.

Dr. Bohrer declared that balling a queen is one of the puzzles to him. He thinks it is an indication of a dislike for the queen.

Mr. Wheeler said that stray bees dislike the queen and ball her.

Mr. Dadant asserted that bees are upset by some unusual circumstances when they ball the queen.

Dr. Miller declared that bees never sting a queen to death unless the human interferes. Cold smoke blown on the ball of bees will release a queen at once.

M. M. Baldridge said that bees ball the queen because they think she is a strange queen, by her actions. To prevent balling the queen always smoke the bees, or rap on the hive to cause them to fill themselves with honey, when introducing her. A young and active queen in the spring is apt to be balled, owing to her running about in the hive, frightened by the opening of the hive.

Mr. Dadant said that bees seldom make a practice of balling queens.

Mr. Taylor said that bees must not be fussed with too much, and then not much balling will result.

Renewing Queens.

A majority do not renew queens at all.

Mr. Dadant advised replacing queens when they become inferior. He mentioned a queen five years old and still vigorous.

Dr. Bohrer agreed with Mr. Dadant.

Mr. Whitney claimed that bees would not always supersede a queen at the best time.

Dr. Miller said it may be an advantage to supersede queens and breed from stock that is long-lived.

Mr. Dadant declared that workers wear themselves out, and the best bees live the shortest time.

Mr. Wheeler said we are not so dependent upon the long life of the queen.

Dr. Bohrer then spoke on whether more than one queen in the colony is useful. He said that one queen lays all the eggs a colony can warm and hatch.

W. B. Chapman said that 2 queens cause no swarming, according to Mr. Alexander.

Mr. Whitney related that he had tried to use two queens in the hive. He got no surplus in the double-hive, and one queen was killed during the winter.

Mr. Taylor thought it was hardly to be believed that Mr. Alexander runs two queens in one hive successfully.

Mr. Whitney mentioned a case where five colonies were in one box—one in each corner and one in the center—and they worked all summer harmoniously.

Mr. Dadant had found two queens in one hive occasionally, even on the same comb.

Mr. Wheeler said he had seen the same thing.

Dr. Miller stated that it is the rule that when the queen is superseded the mother and daughter are together in the hive. He mentioned cases where bees had got tired of trying to supersede the queen.

Mr. Kimmey gave instances of the same thing.

The evening session began with the following question:

Fall Honey for Winter Food.

"Is fall honey unfit for winter food?"

Mr. Taylor: If it is bad for bees it is.

Dr. Miller: What do you mean by fall honey?

Mr. Dadant: I was the one that asked the question. My reason for asking it was that Mr. Taylor said this afternoon that for years he had lost bees in winter because they had fall honey, and that it was bad for bees. Fall honey is the honey that is harvested between the first of August and October, at least with us. I wanted to bring out Mr. Taylor and find out more information.

Mr. Taylor: Some kinds of fall honey are just as good as any for wintering bees. Buckwheat honey is generally good for wintering bees. Honey from swamp flowers is good if gathered in a dry fall, when the weather is warm so that the bees can ripen it. Fall honey gathered from the swamps if often gathered in rainy weather, and from flowers which have an abundance of pollen, which mixes with the nectar, and in cold weather often the honey doesn't ripen, and the stuff mixed with pollen in an unripe state is apt to ferment; in such cases it isn't good for wintering bees. There is a difference in the source, and it all depends upon that and the weather. There are several kinds of fall honey. Some are perfectly good. Buckwheat honey is always good. Goldenrod is good. Boneset and other flowers that grow in swamps, milkweed, etc., if honey is gathered in wet weather, it is apt to be bad for the bees.

Mr. Dadant: I see there is a great deal of difference in locality. We have one apiary in particular, but I have had three apiaries (have two today) that are in reach of the Mississippi River bottom. That is very swampy. The bees gather honey from blossoms that grow only in damp ground—the Spanish needle, for instance. Those apiaries winter as well as any other. Mr. Taylor is right for his own locality. It is quite likely that boneset honey is bad. Heartsease is all right. Its honey is very thick, very rich and all right for bees to winter on. We don't lose any more bees from those apiaries on the Mississippi River bottoms than we lose in apiaries producing almost exclusively white clover honey. The greatest risk is in unripe honey, or in a suddenly cold season when the bees must go into winter quarters with unsealed honey. The honey gathers moisture from the atmosphere. In the main Mr. Taylor and I agree as to conditions. Fall honey is not bad for bees if properly ripened.

Dr. Bohrer: We have no trouble unless we have excessive rainfall and moisture. If honey is not properly evaporated, and poorly sealed, there is trouble. I have never had but one case of dysentery among my bees. The sun's rays did not strike that hive. It had no chance to evaporate, and the bees had no warmth in the hive to evaporate it. It may have been the chemical conditon of the atmosphere. I don't know. The honey seemed to be thick enough. At one time I took three frames out of the hive, but it was not all sealed. I wouldn't have fed it to the bees, but we used the honey up before it spoiled. At one time, when I was living in Indiana, there were thousands of colonies died of cholera. The honey soured right in the combs, in the apiaries and in the cellars, and dysentery among the bees was the result. It was not contagious, for as soon as warm weather came I saved the bees. The same trouble that killed the bees then existed all through the season. The condition of the weather has a great deal to do with it, excessive moisture in the atmosphere.

Mr. Wilcox: My opinion is entirely with what has been said. My opinions are based upon experience. Fall honey is not injurious because it is fall honey. It is injurious for other reasons. Boneset honey is bad. Honeydew is always undesirable. That is, the honeydew from aphides. The cause of fermentation does not depend upon the fact that it is gathered late in the season, but upon the conditions when it is stored in the hive. Left in the hive and the colony becoming weak, the honey would absorb moisture from the air and become very poor honey. If the bees keep it covered it is all right. The combs absorb moisture and the honey becomes thin and unfit for food.

Mr. Wheeler: I have a little experience that proved to me very definitely that honeydew was not detrimental to bees. A friend of mine, where I keep the bees in the summer time, at La Grange, Ill., suggested to me when I moved my bees up to the sweet clover in July, that I let his stand there. There were 11 colonies. They went to work right away and worked all through August and September and filled the hives. I was talking to Mr. Burnett about it. We thought now was the time to find out whether or not honeydew is fatal to bees. Under the same conditions as my bees were, his bees came through in tip-top shape. I don't believe there was an ounce of honey but was gathered from the aphids. But they wintered well on it.

Dr. Bohrer: Fall honey is good winter food. As good a winter food as my bees ever had is heartsease. My bees load the hives with it and they always winter well on it. It is a very dark honey.

Color of Honey.

Dr. Miller: Dr. Bohrer says that heartsease honey is dark. I have always supposed that to be the case. A few years ago I had some extra white honey late in the season. I had no idea what it was. I didn't know for years afterward. I don't know whether I know now. But last year and this year I have had some very light honey. I have serious doubts whether I had anything from white clover. But after the time for white clover I got some white honey, and a good deal of it. I don't know what it could be unless heartsease, for the bees were working very busily on heartsease. Has anybody else had light honey from heartsease? It is decidedly whiter than white clover.

Pres. York: How many have had light honey from heartsease?

Mr. Wheeler: Not this year.

Dr. Miller: Is it sometimes light and sometimes dark?

Mr. Wheeler: I believe that quite a lot of that honey was white clover honey.

Dr. Miller: I don't think so.

Mr. Wheeler: In some seasons they work on both white clover and heartsease.

Mr. Baldridge: I live in the same locality as Dr. Miller. When **he** got light honey **we** didn't. We had immense quantities of asters, and if we had had good weather we would have had a great deal of light honey from asters. The woods were filled with asters.

Dr. Miller: We have plenty of asters, but the bees did not work on asters or goldenrod.

Mr. Dadant: I don't care if everybody here said that heartsease honey was dark. I have my own eyes. I have had 25 barrels of heartsease honey, and it was not as white as clover. It was a sort of pinkish yellow—very much lighter than all other fall honey. Heartsease doesn't blossom at the same time as asters. The petals remain, but the seed is ripe. It still looks like a bloom. Heartsease blooms from the beginning of August until the asters come. Aster honey is just as white as white clover. We had four or five barrels of aster honey. I said to the men at the end of the season, "We have made a big crop. but the end is here. I don't think we will get anything out of asters." But we had a great deal of honey, and it could not come from anything else than asters. Heartsease honey is not dark, and is the nicest selling honey that you can find. It is not dark nor is it a bright yellow.

Mr. Baldridge: In my locality we have no heartsease to mention. The honey I had at the time asters were in bloom was very white. I believe it was gathered from asters.

Dr. Miller: Another reason that makes me think it was heartsease honey, besides the fact that we didn't see the bees working on asters, was the fact that the pollen carried in was exactly like the pollen that I saw them gather from heartsease. Mr. Dadant says that heartsease honey is light. Others say it is dark. He is so positive about it. (I don't want to put

any more confidence in him than he deserves.) His honey is lighter than that of others. If there can be that much difference in heartsease, I believe that my honey can be lighter than Mr. Dadant's. There was so much difference in time between the bloom of clover and heartsease. The pollen was exactly like heartsease.

Mr. Dadant: There are some twenty different kinds of heartsease. Is it not possible that some kinds yield darker honey than others. Probably the kind that Dr. Miller has is different from what we have in Central Illinois, and they can be still different from those in Kansas. This explains the difference.

Dr. Miller: Until within a year or two heartsease has been very scarce. Practically none. This year a great deal of it was to be seen.

Mr. Taylor: What is the color of basswood honey?

Mr. Wilcox: Nearest white of any honey that we produce in Wisconsin. It is nearer a milk white. I produced heartsease for a good many years. I never yet produced any that was light colored. This evening is the first time that I ever heard or read of it. We have a plant that blooms on old, worn out fields. It is a species of horsemint. You will know when the bees are working on it. Their backs are covered with a silver gray dust. That honey is very light, almost white. It grows at the same time heartsease does, just before the basswood, or at the commencement of the basswood flow. The bees might have been getting that when you thought they were getting a clear crop of heartsease. Otherwise I should say that heartsease honey was dark, but has a lighter color than basswood.

Pres. York: Does soil have an influence on the color of honey? I understand that the color of alfalfa honey is different in Arizona and Utah than in New Mexico. I understand that soil is responsible. How many agree that basswood honey is lighter than clover honey? Five. How many don't agree? About the same number.

Mr. Taylor: Why couldn't it be just so with heartsease honey? Take the clovers—every different kind of clover produces a different kind of honey. If different clovers vary, why not different varieties of heartsease?

Mr. Wilcox: I like that. There are two species of basswood in my locality. The two kinds of wood don't put out leaves in the spring at the same time. There is a difference of about two weeks in the time.

Pure Food Laws and Honey Demand.

"Have the pure food laws enacted by Congress and the different states caused a greater demand for honey?"

Mr. Taylor: No.

Mr. Wilcox: Yes. I have always been a strong advocate of the pure food law. I am very pleased with them. We have what we asked for, and should be glad. The pure food law enables the customer to have some confidence that the thing he buys is what he calls for. I cannot buy enough honey to supply my customers. I am getting more orders, and am confident that some of it comes from the confidence in the goods.

Mr. Taylor: I think we are fooling ourselves. I have always thought so. I don't think the pure food law has the least effect here in Chicago. It doesn't apply to honey here in Chicago. It applies only to interstate commerce. A man can make all the adulterated honey he wants to, and sell it in Chicago. If the state law is enforced you will get less of it. If you don't enforce the law you will get the same as before. It is foolish to attribute the increase in the demand for honey to the pure food law. It is due to the fact that you haven't got any honey. People want it when you haven't got it. That accounts for all the advance we have so far.

Mr. Arnd: The pure food law has driven a number of concerns in Chicago out of the honey business. A great many wholesale grocery houses are now putting up their own honey. They buy honey and put it up themselves. A number of so-called noney dealers have gone out of business here in Chicago.

Mr. Taylor: You have enough left to supply Chicago. In my state I have traveled a little this fall. One day I came across a horse hitched to a covered rig, and as we stopped at the place I inquired of the driver what he had, and he said he had medicines and bottles of all kinds and no labels. I asked him where they came from. I learned that instead of shipping them from where they were originally made, they were transferred to Saginaw county. They can ship from there to another place. Honey-dealers left Chi-

cago and have gone to Indiana, and are continuing.

Dr. Miller: Will you tell us what drove out those few that have gone?

Mr. Taylor: You have enough left to supply Chicago.

Mr. Arnd: It isn't likely that a large grocery house would have a house in every state in the union.

Mr. Dadant: Here are facts. We have been dealers of honey for forty years or more. We never thought that we could sell honey to small grocers. We never tried to. Four years ago I got acquainted with a grocer in Keokuk. He handled Chicago honey. He said to me: "You sell your honey at 10 or 12 cents a pound in small packages. We can buy honey in Chicago so it can be handled for 10 cents a pound. We like to handle pure goods, but we must meet the price." I met him again last fall. He then said: "We are compelled to use pure goods, and I am glad of it. We will have to use pure honey." I asked him if he could handle our honey now. He took $600 worth of honey that season. And he is still handling our honey. He used to handle manufactured honey. Such is sometimes labeled "Artificial Honey." The pure food law has helped already, and it is going to help. The pure food law went into effect January 1, 1907, but no one was prosecuted until October.

Mr. Taylor: The pure food law did not affect that.

Dr. Miller: The pure food law went into effect last January. There is a prohibiton law passed down in Alabama. It doesn't go into effect until January, 1909. But it affects the liquor business. It has its effect before the law really takes effect. These are facts that have an indirect bearing. Where I live it was common to see impure goods year after year—syrups, jellies, and all that sort of thing. I never saw on the labels anything that said anything was wrong with them. Now I see largely a corn syrup. On another can that formerly was sold as honey-drips, now has such a per cent of corn-syrup. You won't find a can or a jar that doesn't say pretty plainly on it just what it is. If those fellows have gone to some other place they don't send their goods to Marengo.

Mr. Wheeler: I see about as many grocery stores as any one here. Lots of these wholesale houses are labeling their articles a certain brand. They have "So-and-So's" brand of honey. They don't call it "pure honey." The store-keeper can retail the stuff for 20 cents per pound fruit jar. They have it in jars from one pound down. They have a way of dodging the law so that you people don't think of it. People don't look for the word "pure." They see the word "honey" on it and buy it. There is a lot of this kind of goods put on the market that I don't consider pure, and a great deal sold, especially in the poorer districts. Every store has some sort of honey in it. It is sold under different brands, just as the "Old Manse" brand of maple syrup. The dealers claim that if they use the word "brand" it simply means the same article has been put up for years before. It is the same article under the same name. I think you would be surprised at the amount of honey in the stores today.

Dr. Miller: What is there in the price to make him think that it is not pure honey? What are the prices?

Mr. Wheeler: In the size of packages. A pound and a half of honey cannot retail at 20 cents.

Dr. Miller: Can pure honey be offered at 20 cents for one and one-half pounds?

Mr. Taylor: Perhaps there is one way in which the pure food law will do good. If the people become convinced that the law is carried into effect, and that goods are all properly labeled, what will be the result? Not that they will eschew all syrups and jellies, but if they like them they will buy them, still resting upon the law that they are getting just what the law calls for. Many people like these syrups. Chemists tell us they are just as good as honey for eating. Under such circumstances they will buy it just as largely—maybe more largely than before.

Dr. Miller: Do you think that what was called the "Wiley lie" hurt the sale of honey any? No? Then he is in a class by himself.

Mr. Taylor: The cry made by the bee-keepers affected the sale of honey. If they had made no fuss there would have been no trouble.

Mr. Moore: This discussion strikes very close to me. I have an experience of over 20 years, confining myself to family trade. I have been in touch with wholesale trade, and have a pretty general view of the situation. To use

the word "honey" on the package in question, if it is not all honey, is illegal. "Pure" is not necessary. Pure goods don't have to be labeled at all. "Honey" means "Pure Honey" only, and always. Is it possible to sell a pound jar at 20 cents? California honey can be sold for 11 cents. So 9 cents would be plenty of profit. It is not necessarily impure because it is sold at 20 cents. In regard to the pure food law. I am much interested in the pure food law. Away back of January 1, there was an effect on commerce in Chicago, even before the grocers were talking pure food law. People began to label their goods truthfully. The public has a wholesome respect for Uncle Sam. As soon as Uncle Sam took an interest in the pure food business people began to "sit up and take notice." As far as I know there hasn't been an effort in the United States to enforce the law. It has been a self-enforcing law. Because of respect for Uncle Sam it has an effect, a very natural effect. My honey is always pure. People buy it with a freedom never known before. They have confidence that Uncle Sam will punish a man who sells impure honey. Lack of confidence is a natural thing. The confidence that people have in Uncle Sam helps every one to sell honey, whether this advertising is making people more skeptical or more careful as to whom they buy honey from. As to the Wiley lie I have fought against it for years. I have sold mostly extracted honey. I have very often been asked, "Did you make it yourself?" People believe that honey is manufactured. Wiley started it and the reporters have helped it along for the sake of sensation. It is of no use for people to say that the Wiley lie has not hurt bee-keepers. Hundreds, I believe, had quit buying honey until they got acquainted with me. Then they bought it because they believed in me. The Wiley lie stopped people from buying honey because they believed it was made by somebody, and not by bees.

Mr. Taylor: I have sold a good many tons of honey, and never said anything about the Wiley lie to any purchaser. Neither has anybody asked me if I made that honey myself. He has been crying and shedding blood and tears over the Wiley lie. Of course people will ask him. You say, from what we have heard, that these grocers are full of false honey. Call it what you will, it is evidently not pure honey, whether it is correctly labeled or not. Who knows whether the government has punished anyone?

Dr. Bohrer: I am much interested in the pure food law. If you have a defective state law, revive it, and make it an effective one. I am much interested in the production and sale of extracted honey. I think that is the best shape for it, the most healthful. Some say there is an article being sold in Chicago that is not honey. If such is the case your legislature is not treating you right. Revise the law. In Kansas no one dares sell anything under a false label. If he puts the word "honey" on it, and it is not pure honey, that man is handled, and not with gloves. However, under the National Pure Food Law, you do not dare ship honey from one state to another unless it is pure, without danger. People who see the label "honey" on a jar say that it is "honey." The pure food law does not allow it to be sold under a false label, so now people do not question it at all. Merchants dare not handle anything but what is pure. If you want to produce more honey and with less labor, begin to produce extracted honey. You will all find it to be an advantage.

Mr. Wheeler: Dealers use a certain mark that is permissible by law. The word "brand" is used a good deal. The goods are sold so cheap.

Dr. Bohrer: Are you sure it is not pure honey?

Mr. Wheeler: Pure honey is much higher in price than it was a year ago.

Mr. Moore: The National Bee-Keepers' Association put $200 into my hands to help clean up the Chicago honey market, and I claim that there is no man better able to give an intelligent opinion. Truth should be published. Owing to this fact, that I was retained by the National Bee-Keepers' Association to clean up the Chicago market and stop the fraudulent sale of honey, I have been in close touch with this market. Shortly after this time that I speak of, the Illinois Pure Food Commission went into business. Then we began to make a collection of samples. We found at that time between 20 and 30 different kinds of bogus honey on the market. We arrested one man. He was discharged by the justice because he swore he didn't know it was impure. Since the organ-

ization of the National Pure Food Commission the conditions have been better. For the last five years the Chicago market has been practically bare of anything but pure honey. These facts should go forth to the public.

Hive Lifting Devices.

"Would a hive-lifting device be of use in the apiary?"

There were 3 affirmative answers and 12 negative.

Wintering Nuclei in Cellar.

"How would you winter a nucleus of bees if the cellar were too damp?"

Mr. Wilcox: Make it dry enough.

Mr. Taylor: Make a queen-excluding honey-board and set it on top of a strong colony.

Honey-house for 50 Colonies.

"What size honey-house is necessary for 50 colonies, running for comb honey, there being no other building to store things in?"

Mr. Taylor: If he wants to store empty frames, etc., and room to prepare honey for market; and if he wants it for honey only, are two different things. About 15 feet square is large enough for honey.

Mr. Wilcox: 16 x 24 x 12 feet high for storing empty frames, etc., and preparing honey for market. 12 x 16 x 7 feet high, if for honey only.

"What would it cost to build?"

Mr. Wilcox: $250.

"Has anybody had experience with tar paper over a frame house?"

Mr. Dadant: I had experience with a sort of felt, and very soon replaced it by metal. We use corrugated iron for cheap roofing. It is fire-proof, clean, and does not rust readily. I have had some for 7 or 8 years. It costs less than shingles.

Dr. Miller: My shop is covered with a sort of felt. I believe it is good. I would put on this roofing instead of shingles.

Mr. Kimmey: I have had experience with prepared roofing and corrugated iron. I put up a building 48 x 50 x 24 feet. I put on corrugated iron a year ago last March. Last January it was all rusted out, and I had to put new roofing on. There are different kinds of both. Some stand well and some don't. It depends upon the quality. As to felt roofing, I suppose he means any roofing material. I have a building 48 by 16 feet. I put on roofing paper 8 years ago and it is just as good now as it was then. There are different kinds on the market.

Mr. Fluegge: My plan was not to cover a part of the building with roofing, but to build the building itself with tar paper or felt roofing. Build the frame and then put it on in 4-inch strips. Cover this with wire netting and then cover with roofing. What is the experience of bee-keepers on it? Is it worth having? It would be cheaper than lumber here.

Mr. Holbrook: In South Dakota there are many tar-paper buildings. Tar-paper will affect the taste of honey.

Dr. Dadant: I have tried tar-paper. I put sand on it. I had it three years, then all of a sudden it leaked through, and it didn't take long for it to go. I have had corrugated iron since 1896. It is not near a smoke-stack with coal soot flying on it. The smoke of the coal rots it very fast. You, however, run no risk, because you don't need to burn coal. Put the corrugated iron over the tar-paper. The first that I put on I galvanized all over. There was no change in it. I don't nail it much. I covered my barn with corrugated iron, putting in three nails at the upper end of the sheet and three or four at the bottom; put them on top of the corrugation, and don't set them in too deep. There is no danger of rusting and no danger of fire.

Mr. Flugge: Suppose the building was built of that for walls instead of wood, would it be dust-proof for a honey house?

Mr. Dadant: There would be no dust if put up right.

The convention adjourned until 9:30 a. m. the next day.

THURSDAY MORNING SESSION.

The meeting was opened with prayer by J. L. Anderson.

Pres. York being called away, Dr. Miller occupied the chair for the first part of the morning session.

Committee on Resolutions.

Mr. Kimmey: As is well known to you, the wife of our President died recently, and it is thought proper to bring in these resolutions:

Whereas, It has pleased Almighty God in His divine wisdom to take from our midst Mrs. George W. York, wife of our respected and beloved president; therefore, be it

Resolved, That while we bow with

reverent submission to the Divine will we can not but feel that most profound sorrow at the irreparable loss of a kind friend and worker for good in all the relations of life.

Resolved, That we tender to the sorrowing friends and surviving relatives, our heartfelt sympathy in their great bereavement.

Resolved, That a copy of these resolutions be spread upon the minutes of the Association and a copy thereof be transmitted to the afflicted family.

It was moved and seconded that this preamble and resolution be adopted.

Mr. Kimmey: Before putting the motion, it seems fitting that some proper person say a few words on the resolution.

Dr. Miller: It is with some diffidence that I speak. As to Mrs. York, she was unknown to most of you. And yet I want to say to you that she was a more powerful factor than most of us realize. I wish I could tell you just how I appreciated her. I knew her well. I have been in her home a great many times. To begin with, she was a woman of remarkable executive ability. She could carry on business, and did business as many a man would. Yet she was a womanly woman. She was a woman of tender heart, and yet a woman who had strength of character to come out strongly on any point where the right was not having its way. She did not hesitate to say so, no matter whom it might touch. A person of that character is not thought of as being gentle at heart; yet she was a tender woman at heart. I am just realizing the loss that Mr. York has sustained by her being taken away. Few can appreciate the loss of a woman of so strong character, and yet so kind, and tender, and thoughtful of every one else.

Mr. Anderson: I endorse what Dr. Miller has said. I knew Mrs. York well in her girlhood. She lived but two miles from my home.

The resolutions were unanimously passed.

Mr. Kimmey: Most of you know that we also have lost Mr. Meredith. I submit the following resolutions:

Whereas, it has pleased Almighty God in His divine wisdom to take from our midst Mr. E. K. Meredith, a long time member and worker in our Association; therefore be it

Resolved, That, while we submit to the Divine will, we can not but feel the most profound sorrow for the loss of our fellow member and kind friend;

Resolved, That we tender to the sorrowing friends and surviving relatives our heartfelt sympathy in their great bereavement.

Resolved, That a copy of these resolutions be spread upon the minutes of the Association, and a copy thereof be transmitted to the afflicted family.

Mr. Moore: In this vocation I feel that I am entirely out of my place. It is never pleasant to look into an open grave. This brother and sister who have met with us year after year and have smiled into our faces and have answered our remarks and have been to us like a brother and a sister. It is a sad thing to come to the time when they are with us no more. But that is a thing that no living man or woman can avoid. Slowly, but surely, every one of us is going to that bourne from which none returns. During life it is impossible to separate some thoughts of religions from our daily life. As we approach the end of life that we call Death, every man and woman turns instinctively to thoughts of religion. Without religion we are but as the animals who live a day and then are gone. Our religion teaches that we are not as the animals, that this is just a school-time preparing us for the Great Beyond. That is our hope. This brother and sister who have been so dear to us, and have been as brother and sister of our own family, we are confident that they have gone to a better land and that we will meet them again. That takes the despair out of our hearts. Even the Indian talked of the "Happy Hunting Ground." He had a hope of Heaven, and we have a hope of Heaven, and hope to meet our friends again who have gone to the Better World. The great God who made us all, who made man in His own image, would not take that man and drop him into nothingness. That would not be symmetry. We have a beautiful existence in view. If we are going to trade this life for Heaven, then only is the life of man complete. We will meet our brother and sister again in the Better Land.

Mr. Winter: I live within about 2½ miles of Mr. Meredith's home, and feel that I ought to speak a word about him. He was a good-hearted man, always willing to help his neighbors, even to put himself out. He helped

me in a good many ways. He was a good man, well liked.

The resolutions were passed unanimously.

Foul Brood Law for Illinois.

Mr. Kimmey then offered the following:

Resolved, That it is the sense of this Association that the Legislature of Illinois should pass an effective Foul Brood law similar to the Wisconsin law, so as fully to protect the bee-keepers of Illinois from carelessness and ignorance on the part of those engaged in our industry.

Mr. Dadant: The members who have had something to do with the attempts at getting the law passed in the State Legislature twice before, are very anxious to see this resolution passed by the bee-keepers of the Chicago-Northwestern, because we should have behind us not only the example of other States, but the opinion of the bee-keepers who represent the industry in Illinois.

Mr. Wheeler: Does this body represent the bee-keepers of Northern Illinois?

Mr. Kimmey: The committee considered this matter, and while there may be force in the argument that this Association consists of bee-keepers from other States, and that it perhaps may seem a little out of place that the bee-keepers from adjoining States should call upon the Legislature of Illinois, still bees know no State lines. The man from Wisconsin is interested in Illinois. So are the States of Iowa and Missouri which adjoin our borders. If any objection be made to these territorial bounds, we have this to say, that we shall call upon the Legislatures of all States. We should pass this resolution to strengthen the hands of the legislators.

Mr. Reynolds: How many bee-keepers are there in Illinois? (About 35,000.) Do the bee-keepers know this?

Mr. Anderson: The bee-keepers should be at this convention. The Chicago-Northwestern, the Illinois State, and another Association in the Southern part of the State, represent the bee-keepers of this State, and if they are not here, it is not our fault. We represent a good share of the bee-keepers in Illinois.

Mr. Reynolds: How many have heard of it? What papers have advertised it?

Mr. Kimmey: We don't pretend to represent the bee-keepers of Illinois. Simply the opinion of this Association. We are simply speaking for ourselves.

Mr. Reynolds: In regard to this resolution being put before the Legislature. Where, in case of disease, you were given 24 hours to clean up or burn, would it be to your advantage? Simply for the manufacture; simply that we should have to buy new supplies.

Mr. Kannen: The law did not say that an apiary must be burned up if the bee-keeper is willing to cure it.

Mr. Whitney: The point is: Do we want to cast our influence in favor of a good foul brood law? It seems to me that designating what kind of a law the Legislature shall pass is out of the question. Shall we adopt a resolution putting ourselves on record that we are in favor of a good foul brood law? I am in favor of the resolution.

Mr. Moore: Just one word of information. The only organization that is recognized by the Legislature of Illinois is the Illinois Bee-Keepers' Association. Anything we do is purely advisory. After a talk with Mr. Stone, Mr. Smith, and Mr. Becker, I know their views entirely. They would like to get a law through that is perfect in all of its parts. It has been impossible to get any law at all. We need a law based on the Wisconsin law. We can say nothing as to what shall be put in that law. They will have to do the best they can, but this is old and is thoroughly understood by the bee-keeping fraternity.

Mr. Wilcox: This resolution simply says that we are in favor of a foul brood law. I had something to do with the Wisconsin foul brood law. One of the objections raised by one legislator was, What is to hinder shipping in foul brood from other States? Our answer was that we hoped to have similar laws passed in other States. We hope to have. A law patterned after the Wisconsin law will be appropriate to Illinois. There is nothing objectionable about it. It is strong in its provisions, but never resorting to extreme measures. No rash measures have ever been employed by Mr. France, who is the inspector for Wisconsin.

Mr. Kimmey: We should not be hasty in so important a matter. If there is any danger of this law being passed for the advantage of manufacturers, we should stop and investi-

gate. Is there any danger of this law being turned toward the manufacturers? How many Wisconsin bee-keepers are there here? (3.) Is this law a beneficial thing in your State?

Mr. Wilcox: I am sure it is a benefit to the bee-keepers of Wisconsin. It subdues and prevents foul brood. It does not benefit the supply-dealer, directly or indirectly.

Mr. Whitney: I think it is a great benefit. We feel perfectly safe in Wisconsin. It is well known that I have sold bees to come into Illinois. Before I concluded to send them I wrote to Mr. France and asked him if he knew if there was foul brood in the neighborhood. If there was any, I would not send them to Illinois. He said, "No." So I felt safe to send them. I feel very anxious that everybody should do what he can to get a foul brood law that is as effective as it is in Wisconsin. I think it is all right. It has not added one penny to the manufacturers.

Miss Candler: I have always felt that it would help me. I am very glad to have it there.

Mr. Reynolds: If the foul brood law is right, it will be all right.

Mr. Dadant: Is any one present who knows of any one in a State where they have a foul brood law that has caused discontent among bee-keepers?

Mr. Taylor: I am a foul brood inspector myself. We have a foul brood law in Michigan. The former inspector had been so busy that he used all the funds. More funds were supplied about July 1. During August and September I visited 40 or 50 apiaries. Any one would be surprised to go into a neighborhood and see the condition of the bees. I went where almost every apiary was rotten with it. In all my experience I found only one man who was dissatisfied. Most were glad to have me come. Bee-keepers generally are glad to have their bees looked into.

Mr. Reynolds: There was another clause that said if you had a colony of bees in one yard that was affected, you could sell no honey from that yard. The law should be fair—one that will work both ways.

Mr. Taylor: We have nothing to do with the nature of the law. The question is simply, Shall we have a law?

Mr. Wheeler: We have a foul brood law. The bee-papers say so.

Dr. Miller: There never has been a foul brood law. That bee-paper was mistaken.

Mr. Wheeler: We say there have been inspectors of the highest type. We don't know what they will be in the future. I understand that people know what Mr. France and Mr. Taylor are. We don't know what the future has in store for us. What we want to do is to ward off unfair people. We want to protect ourselves. We do not want to put ourselves in the hands of people who care nothing for us except what they can get out of us.

The resolution was passed unanimously.

Early Hatched Queens.

"Why are early hatched queens poor?"

Mr. Wilcox: Call for a show of hands as to how many think they are poor.

Dr. Miller: What do you mean by early hatched queens?

Mr. Dadant: If by an early hatched queen is meant one reared by a colony not ready and not strong enough. I believe that the question is right. If, however, an early hatched queen is simply a queen of an early swarm that is swarming naturally early in the season, I think it is entirely different. A queen might be hatched so early that the time might pass for her mating and she would be unable to find any drones; or where the brood can not be kept warm; or where the queen-cell is not made with large capacity. I think under some of these circumstances there is a chance for a queen to be inferior. I think there is a greater chance when the colony is not in a position to rear queens. A queen can not be inferior except accidentally, when a colony is in a position to have plenty of honey and plenty of heat, and everything necessary to rear a large number of bees.

Mr. Wilson: The flow of nectar has a great deal to do with it.

Dr. Miller: Can a beginner rear good queens in April?

Mr. Taylor: For the flight of the virgin queen in order to get good results it should be good, warm weather, and if there happens to be warm weather at the proper time, and if the queen is properly nourished, there is no reason why she should not be a good queen.

Mr. Moore: About 35 years ago I can remember that in rearing queens

our folks took a single frame. They reared queens from a single frame. The 20th century idea is that the best colony is none too good for rearing queens. Beginners would better not try to rear queens until they have settled warm weather and great big strong prosperous colonies to get them from.

Mr. Dadant: If you have plenty of bees in a small hive you could then rear a good queen. If you can get such a large number of bees concentrated on that one patch so that they will feed the queen with enough royal jelly, you can rear a good queen from a small colony, if crowded.

Dr. Miller: One of the things that I have had to fight about within the last few years was the saving of the life of any queen reared early in the season. Sometimes a colony will rear a queen in April. My own judgment is that the proper thing to do is to take off the queen's head. My assistant says, "Let them try." Miss Wilson, how many times have we gained anything by saving life?

Miss Wilson: Not many.

Mr. Wheeler: You are not alone in that. I have women at my house. They are always sorry to see a queen's head come off.

Dr. Miller: You can rear a queen 3 weeks before swarming time by putting 10 colonies together, but I don't want queens reared from that kind of a colony.

Mr. Dadant: Why?

Dr. Miller: I don't know. You want all favorable conditions. Nectar must be coming in. You can feed, but not as well as to have the nectar coming. You must have warm weather. How many think you can rear good queens 3 weeks before the time that bees will naturally swarm—in this latitude? How many think that good queens can be reared before the middle of May? (3.) How many think good queens can not be reared before the middle of May? (6.) The middle of May is different in different years.

Mr. Kimmey: I had a very good queen two years ago.

Mr. Taylor: Can a good queen ever be reared before the middle of May?

Unanimously, "Yes."

Objections to Foul Brood Laws.

"What is feared by those who object to a foul brood law?"

Mr. Dadant: I would like to answer that question. I have been called by the Legislature, or rather by the committees of the Legislature, to advise on the matter of foul brood, if it is contagious. I was with the secretary of the Illinois State Bee-Keepers' Association. The member of the Legislative committee held in his hand a letter which he had received in which it was said that bee-keepers will be injured by a foul brood law because the inspector will burn the colonies, and the supply-dealers will sell more goods. He did not give the letter writer's name. In the afternoon we went back and gave the name, as we thought it was. The letter was opened and that was the name.

Bee-Space or Quilts Over Frames.

"Is a bee-space over the frames next to the cover preferable to the use of quilts there?"

12 said "Yes," and 2, "No."

Learning About Bees.

"What have you learned this year in keeping bees that is any good?"

Dr. Miller: I don't know. How many think you have learned something this year that is any good? (3.)

Mr. Taylor: I don't know as it is very new. But it is new to me. Often there is a great deal of question as to how to keep down increase of colonies. When a swarm issued I shook out all the bees from the combs and set the frames on weak colonies with a board between. This is good.

Mr. Chapman: I have learned something new to me. Heretofore I have taken extracted honey off the hive and extracted immediately. This year I took my honey off with bee-escapes and set the honey away until late in the fall, and at my convenience I extracted. I kept the honey in a warm room.

Mr. Wilcox: I used to store honey until fall before extracting, but I don't now. You can store it a little while, but it is likely to granulate, especially in unsealed combs. It is advsiable not to store it, especially in the fall.

Mr. Wheeler: Did Mr. Wilcox use bee-escapes 25 years ago?

Mr. Wilcox: I used them as soon as described in the bee-periodicals. I don't use them now.

"What have you learned to avoid?"

Mr. Dadant: We have learned to avoid discouragements, because in most discouraging seasons we are closer to

success. What I mean is this: That when the bee-business looks at its worst, that is the time when we must learn to take good care of our bees, because the worse off they are the better chance there is for us to succeed. Circumstances will be more favorable. We must avoid being discouraged simply because the bees are discouraged. We had a good instance of that this year. In March we had an early spring, and the bees were in good condition. Then came the frosts, and we lost several colonies. I advised keeping on and taking better care of the bees. We did, and were rewarded.

Mr. Wilcox: If other seasons are like this, we have learned to avoid putting honey-money in the banks!

Dr. Miller: I had pretty nearly given up having any honey at all. The time for clover had passed, and then came a flow of honey, and I got an average of 66 sections to the colony, of the very finest white honey. It was an average of about 60 pounds to the colony.

Mr. Whitney: What sort of honey was it?

Dr. Miller: I don't know. I think it was heartsease.

Dr Bohrer: There is a heartsease in Kansas that always produces dark honey. You have a different species here that produces light honey.

Use of Propolis and Pollen.

"Of what use are propolis and pollen to the bee-keeper?"

Mr. Taylor: No use except through the bees. Bees must have pollen. Propolis fills up cracks, and smooths the surface.

Dr. Miller: In Europe propolis is used as a matter of commerce, as a sort of salve. Also in varnish. Pollen is of no value whatever except as a food to bees. It thus has more value than the average bee-keeper thinks. A pound of pollen in some circumstances would be worth 10 pounds of honey.

Dr. Bohrer: Propolis as to medicinal property is very unreliable. It is not used at all extensively. I don't think it is of any use, but a great pest. Propolis partakes of the nature of the flower from which it is gathered.

Mr. Lyman: It has seemed to me that both propolis and pollen have a bearing on the flavor of honey, provided it is left on the hive long enough.

Mr. Burnett: Would a few cells of pollen in a comb of honey hurt the sale? I never have been able to answer the question as to the effect it would have. Does it affect the taste of the honey in the comb, or just in the cell?

Dr. Miller: The pollen has no effect on the honey in the comb except that one cell. If you cut out that cell the rest of that piece of honey will be just as good as if there had been no pollen.

Mr. McCain: Is it true that, if a section has one cell on a comb full of pollen, that the rest of the cells would have pollen distributed through them?

Dr. Miller: I think not.

Mr. Dadant: I think the statement was that when pollen is mixed with the honey in any large quantity. A bee can sift out the pollen from honey in the honey sack. The worst feature is when the pollen is in the bottom of the cell. I believe that in most cases it will be found to be so, although there are instances when the honey contains a great deal of pollen. White clover contains no pollen, or so little that it is imperceptible. It makes a dark spot, but is not objectionable.

Mr. Burnett: It has more importance commercially than we perhaps think. Many people think that it is some form of so-called dead matter. The venders will not buy anything that is likely to be objected to. Is there any possibility of any bad effect on the stomach?

Dr. Miller: No. How many like occasionally to taste the pollen? (1.)

Mr. Moore: The greatest objection to comb honey with pollen is that it is a breeding-place for the moth. I have had several cases. Keep pollen out of comb honey.

Dr. Miller: Mr. Burnett, do you find honey and pollen also in the cell?

Mr. Burnett: No, no honey; just pollen.

Dr. Miller: The chief objection to pollen is because moths will start in the pollen and work over the comb. The section that has unsealed pollen in it is likely to be a wormy section.

Mr. Taylor: The fact that moths seek the pollen and flourish there in preference to honey shows the comparative value of pollen as food. A colony without pollen cannot rear brood. The same is true with the moth. It could not live on honey. It must have pollen.

Mr. Lyman: What causes the so-called honey-flavor in honey?

Dr. Miller: The oil that comes from the flower.

Mr. Wilcox: And the smell from the volatile oil.

Mr. Chapman: That is a good question. These volatile oils are subject to contamination by whatever is put with them. That is the way perfume is made.

Mr. Lyman: If you have honey from a certain flower, will the pollen affect the flavor?

Mr. Dadant: In the blossom there are 3 smells: The smell of the petal, the smell of the pollen, and the smell of the honey. Perfume is made from the petals. Pollen has a very faint smell. The way the pollen in the hive gives flavor to honey is of very little importance, because the pollen is separate from the honey. The Italian bees put honey in more compact shape, and fill every cell wherever they can. A few grains of pollen in a section, I imagine, can not have any effect worth mentioning upon the honey, especially as the honey is not in the dust shape, but is in a paste. You will see bees pass by a rose which gives its smell from the petals, because there is no honey. Bees will go after honey in flowers that have no odor. Bees will go into blossoms only when there is honey. Bees will pass white clover if no nectar is in it. There are very distinct smells in a flower. A bee will find the flowers that have the smell of honey, although there is no smell of petals. The blossoms that you and I like because of their smell are disregarded by the bees.

Mr. Wheeler: That is a nice story. It sounds good, but I have seen bees alight on white clover without attempting to gather honey.

Mr. McCain: In regard to the pollen giving taste to honey, I would say that I have honey now that was gathered by the bees last season, and a few days ago, on trying it, I hit some of it that had a strong pollen taste. I looked to see where that pollen was and could not find it. There were no pollen cells, either sealed or unsealed. There were no pollen-grains. The pollen taste was very decided. I believe that the presence of pollen in the hive in some way gave that honey a very strong flavor.

Mr. Moore: I absolutely condemn any pollen in comb honey for the market, on account of the looks, and the possibility of the moth breeding in it.

Dr. Miller: The idea of the moth larvae going through honey would be nastiness in the extreme. I don't believe they would go into honey.

Mrs. Holmes: The egg is carried in with the pollen. I don't think the worm lays its egg in the honey.

Clipping Queens.

"Is there any harm in clipping queens?"

Dr. Miller: How many of you think there is no harm in clipping queens? (18.) How many think there is harm in clipping queens when the clipping is properly done? (None.)

Large vs. Small Hives.

"Some prominent bee-keepers state that an 8-frame Langstroth hive is as profitable as a larger one, and that such hives give as good results per comb as large hives, say 12 to 15 or more frames. What results have any present had with large vs. small hives?"

Dr. Bohrer: One of the first movable-frame hives I ever used was either 16 or 18 frames. I got more honey from that than from any other colony I ever had. That was in Indiana, and right beside others in 8 and 10-frame hives. In Kansas I have had none larger than 10-frame until the past season, and this season was none to compare by. I am of the impression that if you have the best kind of a queen, that you will get better results from a 14-frame standard Langstroth than from one smaller.

Mr. Anderson: I have kept both side by side for nearly 40 years. I have about 40 colonies in 10-frame hives and about the same in 8-frame hives. I am increasing my 10-frame hives. They will fill 28 sections as quickly as the colonies in 8-frame hives will fill 24 sections. The only objection is the weight.

Growing Sweet Clover.

"Will sweet clover grow in any kind of soil, and in any part of the United States? If not, why not? Is there any practical way to make it grow as indicated?"

Mr. Wilcox: I have tried to grow it repeatedly, and have never made a success of making a good stand. I have sowed it with grain, and the winter snows would melt and then freeze solid and smother out the grain, then the sweet clover would grow. It

doesn't grow on the roadside. I have sowed it on heavy soils, and when it once got rooted it grew. It does better on hard land, and where it grows in our state is principally on hard, sandy ground.

Mr. Anderson: It grows well by the roadside.

Dr. Bohrer: I never sowed it on hard ground, but in the spring I scatter it along the road under the hedges, and along fences. It grows there.

Mr. Wilcox: Where the grain died out is where sweet clover grows. Sow the clover with the grain. In producing alfalfa, it is recommended by those experienced that you should not sow it with other crops of grain, but sow it alone, and that is the surest way of securing a good stand. I suppose it is the same with sweet clover. There may be something in the talk in regard to bacteria. You may lack bacteria to start sweet clover. It is believed that if you use soil where sweet clover grows the bacteria will start the alfalfa. Where sweet clover has never grown introduce proper bacteria.

Mr. Burnett: For some years we undertook to raise alfalfa by giving it great care, and no care, etc., but we had the best results on land that was tilled and no crop put in. Then we would get very poor results. I am satisfied from what I know of sweet clover that if you can get a little soil from around the plant and mix it with seed, almost every seed will grow.

Mr. Baldridge: No, it will not grow on any soil, but it can be made to do so. In Arkansas I am advised that they have a great deal of soil that will not grow sweet clover. They claim that there is no lime in the soil. Sweet clover must have lime. Supply the soil with lime and you can grow sweet clover. You can grow it with ashes. You can plant sweet clover in hills and put in a pound or a quart of ashes. Coal ashes will make it grow. I have grown a box of sweet clover, yes, a foot higs, in simply coal ashes. I have a photograph of that growth. There is lime enough in the ashes of hard coal to make it grow nicely. You can get an abundance of that thing wherever they use hard coal. I claim you can make it grow on any land by using lime or coal ashes.

At this point Mr. Whitney gave a very interesting exhibition of his new comb leveler, and also his method of wiring brood-frames.

Honey Now and 40 Years Ago.

"How much more honey is produced now than 40 years ago?"

Mr. Winter: When I started in bee-keeping I bought the 4¼ plain sections. What is the standard size for sections?

Mr. Taylor: 4¼ x 4¼—7 to the foot.

Mr. Wheeler: 4¼ x 4½, bee-way section.

Dr. Miller: How many prefer 4¼ x 4¼ —7 to the foot, bee-way sections? (5.) How many prefer 4½ x 4¼ x 1⅞ bee-way? (5.) How many prefer plain sections? (6.) How many prefer bee-way sections? (12.) How many prefer tall sections? (2.) How many prefer 3⅝ x 5? (1.)

A Member: The 3⅝ x 5⅜, 7 to the foot, 2 bee-way section makes a very handsome section. I like them. My bees will work them quicker than the 4¼ sections. I think they work the tall sections quicker.

Langstroth or Shallow Frames for Extracting.

"Which will produce the most honey, all things being equal—the standard Langstroth frame, or the shallow frame for extracted honey?"

Mr. Wilcox: I do not believe it will make any difference in the quantity. But it might make a difference to the operator. I prefer the Langstroth myself.

Mr. Dadant: The depth of the shallow frame must be considered. If the shallow frame is as shallow as the sections, I believe there is no doubt. If you place the question in a different light: if you, as I do, use a larger hive than a Langstroth, then I would say that a shallower frame than the Langstroth would be easier to handle to extract. We get comb a trifle less than 6 inches in depth. A stroke of the knife will cut it without going twice over it. I believe these frames will prove more satisfactory to apiarists. Where there is a small crop you give the bees full Langstroth frames when there is no need of giving such large frames, except in extraordinary seasons.

Pollen in Surplus Honey.

"Can pollen be kept out of the surplus chamber when supplied with sections or brood-frames? If so, how?"

Mr. Wilcox: I never had any trouble

with pollen in sections, for a queen doesn't go in them. A streak of honey in the brood-frame next to the super tends to prevent pollen getting into the sections. I would put on a queen-excluding honey board. If you hive a swarm and put the sections on the same day or the following day, the queen will get there quickly, and there will be pollen there.

Dr. Miller: One thing that helps to keep pollen out of the sections, and the queen out of the sections, is to fill the sections entirely with foundation. If a section is only partly filled with foundation, the bees will build drone comb, and I have known bees to leave drone-cells above, apparently waiting for the queen to come up and occupy. I have no trouble to speak of at all. I don't use queen-excluders at all. The amount of pollen and brood that I find in the super wouldn't pay me to use excluders. I have the sections entirely filled with comb foundation.

Mr. Wheeler: I notice a peculiar thing about foundation in the sections. In using the Heddon hive, I find that if I hive a swarm in two sections, and leave them there 2 days, then put on the honey super, I have no trouble. But if I hive the swarm at once and then put on the honey-super, the bees having no brood to feed that pollen to, store it in the sections. I leave off the comb honey super for a few days and let the bees get well established, and then crowd the bees into the lower part and put on the comb-honey super.

Dr. Miller: Along this line of pollen in sections I will relate a little incident. Quite a number of years ago a man wrote asking why it was that in sections that he had over shallow brood-frames he had a great deal of pollen, and over hives with deeper frames, he had no pollen. I answered that it was a mere "happenstance," that bees wouldn't carry pollen into the sections over shallow frames as they would in deep frames. Not long after I got some shallow frames. I have 2 colonies on shallow frames. In the sections produced over those frames I had more pollen than in 100 full sections over Langstroth frames. I don't know whether that is always the case.

Mr. Reynolds: A normal colony would be prepared to swarm and would not have much pollen. If the "shook" method is used, they would be in the habit of gathering pollen.

"Can bees be induced to remove the pollen when stored in the surplus chamber? If so, how?"

Dr. Miller: I have had pollen removed simply by leaving it there long enough. If you take the frames that are entirely filled with pollen, in the course of time the bees will work out the pollen. But if it is stored in the sections, I know no way of getting it out.

Mr. Dadant: Would not pollen in the sections, even if taken out, leave a stain in the sections? (I don't know.) Have you had sections with a black spot here and there but no pollen?

Dr. Miller: I have never noticed it. I have never thought of it before. I laid it to the brood.

Removing Eggs.

"Can bees be induced to remove eggs or brood from the surplus chamber when desired by the bee-keeper? If so, how?"

Mr. Taylor: Kill it.

Mr. Wheeler: Kill it by leaving it off the hive for a few days.

Dr. Bohrer: Yes, by immersing the frames in water. It will float the brood and eggs out.

Dr. Miller: Simply dipping down in the water would not in all cases bring water where the eggs are.

Mr. Wilcox: Lay them down flat on the ground in a rainstorm.

Mr. Baldridge: Very frequently I find brood in the surplus apartment. I can get the bees to remove the brood or the eggs very readily by sprinkling them with water. I use a device such as the florists use to sprinkle plants. The brood will immediately be removed by the bees. This is especially useful if you want to sell the honey in the brood-combs.

Mr. Wilcox: The question of removing bee-bread is valuable. But as for removing brood, I never saw the time when I couldn't put it somewhere else.

Mr. Baldridge: Suppose you had a colony with eggs or unsealed brood of black bees when you have Italians. Water will remove every egg and every larva.

Adjournment to 2 p. m.

AFTERNOON SESSION.

Overhauling Bees.

"Is it necessary or advisable to overhaul every colony in the apiary in the spring? If so when is the best time to do so, and how?"

Mr. Wilcox: It has been my practice for many years to do so immediately after carrying them out of the cellar, to clean them if they needed cleaning. It is not absolutely necessary. It is about as well to let them wait a few days and give attention only to those which are very weak or very strong and those which may be a little low in stores. Also to see if they want more feed for brood-rearing.

Mr. Taylor: It is never necessary nor desirable.

Mr. Whitney: I clip queens, so I find it necessary to do so. It is a good plan.

Mr. Wheeler: If Mr. Whitney used the right hive he wouldn't need to look through the combs.

Dr. Bohrer: I would scarcely know whether my apiary were in proper condition to see if each had a queen. Some are found queenless. Then some disposition must be made of the bees. You can often save a queenless colony unless very much reduced. You must look them over to know the actual condition.

Strengthening Weak Colonies.

"If any colonies are weak in brood or bees, or both in the spring, what plan would be the best to pursue in strengthening them, and why?"

Dr. Miller: As helping to bring out the answer it might be well to ask how many approve the Alexander plan?

Mr. Wilcox: The Alexander plan has been misunderstood.

Dr. Miller: Was an excluder used between the two? Was that part of the Alexander plan?

Mr. Whitney: The Alexander plan is understood to include the excluder. Then it isn't anything new. I supposed it was not a very different thing to put one colony upon another if we had an excluder on, and the queens would be protected.

Mr. Wheeler: It was my idea that they use wirecloth between them.

Dr. Miller: Alexander never did. Others do it but not Alexander.

Dr. Bohrer: If I find a weak colony I give it a good queen; and such an amount of brood as the bees can take care of. I take the brood from some very strong colony and give the weak colony only a small amount, just what they can well care for. It won't weaken the strong colony, and will strengthen the weaker one.

(Here the Secretary read Alexander's plan from "A B C of Bee culture".)

Dr. Miller: How many have worked this plan successfully? (4.) How many unsuccessfully? (1.)

Mr. Baldridge: Some have had a good deal of experience. I don't like the plan, because I think there is a better one. Instead of putting the weak colony on top of the strong one, it should be reversed. I get better results. I have been practising this method for 2 years—placing the weak colony under. The bees from the strong colony can go out without mixing. When they return with their load of honey they will return to the lower hive. The young bees will remain in the lower hive to a great extent. You can build up better by placing the weak colony under. I never had a queen disturbed, because I put the strong colony on very quietly. I don't lose any bees nor any queens. That is a better plan than any other. If you put it in practice it will be worth every penny that it has cost you to come to this convention.

Dr. Miller: I have failed with it, and have succeeded with it. In one case I put on the strongest colony a very weak colony. In 10 minutes I saw dead bees being carried out. I left them alone. Soon all were killed. I had not taken pains to do it quietly. I suspect that was the cause. In some cases I put a wire cloth between the two. Then you don't need to be careful. Then take off the wire cloth and leave the excluder on. I remember another case where a strong colony had placed over it a weak one, and after perhaps 3 days I raised up 3 frames of brood from below, brushed all the bees from them, and put 3 frames of brood in the upper story. I left them that way. Next time I went there I found all those frames of brood were occupied by bees. They probably came from below. I left them, and next time there was a good colony there. Rightly used, the plan is an advantage.

Mr. Wheeler: Did you consider, Doctor, that it was safer to use a wire cloth for a few days?

Dr. Miller: Yes, it is safer. If you

are very careful it is not necessary, but it is safer.

Mr. Taylor: I haven't had very much experience—only 2 or 3 colonies. I never lost any bees that way. The first one I ever tried was before I heard of Alexander's plan. I found a colony that I judged was queenless. It had quite a large number of bees. I put a queen-excluder on another hive and set it on top. I found that they had a queen, and very soon I found I had a strong colony above as well as below. I used a queen-excluder.

Dr. Miller: I don't believe that the excluder is necessary if the poor colony is weak enough so that there will be no direct connection between the two clusters, if the work is properly done. The excluder merely prevents the queen passing through. It will not prevent the bees passing from one part to another. An excluder is not necessary.

Mr. Taylor: If the weather is warm and the bees are active, I think it would be quite dangerous. If the weather is cool so that they remain in their separate clusters for some time, it is safe.

Wintering Two Weak Colonies in One Hive.

"Has any one had experience in putting 2 weak colonies into one hive with a partition between, and have them winter in good condition?"

Dr. Miller: I have had lots of them, and they wintered in good condition. Use a ⅜-inch wooden partition.

Mr. Taylor: I have wintered quite a number. I had several colonies light in stores. I selected some heavy colonies and put on a queen excluder and set the light colony on top of the heavy one, and they wintered all right that way. That is, generally. But I put them out and allowed them to remain, and in that case the Alexander plan did not work very well. A great many of them united in one hive or the other.

Dr. Miller: With a partition between the frames, 2 colonies can be wintered in the same hive. I wintered perhaps 20 double hive colonies. When I looked in the winter at the cluster in each hive they would be down apparently in one cluster, merely with that one partition between them. Each cluster got the warmth from there. The cluster was just as nicely formed as if the 2 had been in one colony and some one had slid in between them that board. I believe the 2 (supposing each covered 3 frames of brood) would winter as well as one 6-frame colony. There is certainly a real advantage in having 2 weak colonies together.

Mr. Taylor: I don't see much difference between the two cases, except that the bees can communicate with one another in my plan, but the 2 can work together just the same. They form one cluster the same as Dr. Miller's.

Mr. Kannenberg: Would a wire partition be better than the wooden? I believe the heat would go through the screen better than it would the wood.

Dr. Miller: Wire might be a little cooler.

Dr. Bohrer: I had some queens that I wanted to save over this fall. I had a good, strong colony and put in a good, strong partition. I gave a colony that was queenless a queen. You must see that the bees are equally divided. I introduced the queen after the ordinary method. I don't see why they won't winter well. I think the wooden partition is better unless you want the queen to be acquainted with the bees on both sides.

Mr. Kimmey: Three years ago I wintered 6 colonies that way in 3 10-frame hives, with partitions of as thin wood as I could use. There was no connection whatever between the two parts.

Dr. Miller: In the spring I put them on the summer stands and left them there until crowded and then emptied them into ordinary 8-frame hives side by side, and no trouble.

Granulated Honey.

Mr. Bartkemeier wants to know what to do with people that ask foolish questions about granulated honey.

Dr. Bohrer: Tell them that he is not allowed to sell honey that is not pure unless so labeled. That is the plainest way to deal with that kind of people.

Mr. Whitney: I would say, if I were selling honey, that pure white clover or sweet clover honey would granulate, and if any one has some that would granulate, it is pretty evident that it is pure.

Dr. Eaton: I suppose I have had about as much experience with that line of complaint as bee-keepers themselves. Every little while some one will come in with a sample with the complaint that the honey he had pur-

chased has "sugared" and that it has been adulterated. I have to explain that all honey will granulate, and if it doesn't granulate it is more a sign that it is adulterated than if it does. Granulation is a sign of purity more than if it were not. I have alfalfa honey in brick form to show how pure honey crystallizes.

Mr. Moore: This has been the principal trouble in my business. Consumers are the people who find the fault. Mr. Taylor is a wholesaler. I try to stick to the truth whether it pleases them or not. Very few people in Chicago know anything about it. They expect honey to be liquid, the same as when it runs out of the combs. The best thing I had to say was this: Go to your drug store and find out that it is pure. Refer the customers to the druggists.

Swarming Indications.

"What are some reasonably certain ordinary indications of swarming?"

Dr. Miller: None.

Mr. Wilcox: Bees in the air!

Mr. Miller: That is no sign. Bees are likely to be in the air anyway. I don't believe that there is any outside sign upon which you can depend, as to whether the colony is likely to swarm.

Mr. Whitney: I was watching one of my colonies a few years ago. I saw an unusual commotion on the part of the bees. I started for a queen-cage. I believed they would swarm in about 20 minutes. I had just time to catch the queen. I believe there is an outside appearance.

Dr. Miller: There is a sign that within 24 or 48 hours a swarm will issue. A prime swarm will not give any sign. But an afterswarm will give a sign. You can hear the young queen piping. Then you will know that a swarm is likely to issue within 24 hours. Only one queen will pipe. Three or 4 may quahk but only one will pipe. The queen that is free will make a shorter noise than the others.

Mr. Whitney: Another outside evidence occurs to me. I had a frame out one time looking it over. There was a young queen on it, making that piping noise. She poked her head into a cell and made that noise. I was quite certain that a swarm would issue the next day, and I found it so.

Dr. Miller: The free queen has a higher pitch than the others that we say are "quahking." Those who are quahking commence with a shorter tone. The first one is a long, high note, and then a little shorter, and a little shorter. They will be answered by the others with a lower pitch and the different tones that they make will be equal in length. That's the way they used to do it. Maybe they don't do it now.

Honey Market in Illinois.

"Will Dr. Eaton give a few words about the present condition of the honey market in Illinois?"

Dr. Eaton: I must confess that I am not quite so well posted on the honey market in this city now as I was 2 years ago. However, in my work as an analytical chemist, I sometimes inspect the grocery stores of the State, and my own work in that line leads me to take quite an interest in seeing what is on the market. And naturally I get, now and then, samples of honey for analysis. I always take a great interest in the meetings of this Association, and also the meetings of the bee-keepers wherever I may happen to be, my first interest having been with the Minnesota State Bee-Keepers' Association, and whether I am in official work or not, I like to drop in at these meetings. I always find something of interest to me as a chemist. I might say that this Association is largely responsible for the Illinois State Pure Food Law. Had it not been for this Association and the State Association, I don't believe there would be an Illinois Pure Food Law. Those two associations made possible the State Pure Food Law.

When this Association first took hold of the work before the State had a pure food law, they gathered a number of samples—40 or 50, I believe—and I did the analytical work. We found about 33⅓ per cent of those samples adulterated. They were all sold for pure honey. That same proportion of adulteration kept up for 2 years after that. The law was not very vigorously enforced at first. The penalty was not enforced at once. Therefore, the adulteration did not decrease immediately. But the last few years the adulteration began to grow less. Only one sample of adulterated honey was found the last year of my connection with the Pure Food Commission. We practically drove adulterated honey off the market. Now there is quite a good deal of mixtures of honey on the mark-

et. It is, however, generally labeled in conformity with National requirements, stating the per cents of the mixtures, whether it be cane sugar or glucose. But that form of adulteration has probably grown in the last few years; that is, the labeled mixtures, not the adulteration. It is probably due to the higher price of honey and foods in general. We find quite a good deal of mixed honey on the grocery shelves. They can not be any very great detriment to the buyer who will buy pure honey in preference to mixtures if he knows what he is buying.

I suppose you all noticed the reports of the convention in France where they spoke of a mixture of invert sugar with honey, and said that that article would enjoy a wide sale, and claimed that it is already being produced in the old country. That is, of course, an ideal form of adulteration. It is a form of adulteration that is going to be hard indeed for the chemist to detect. Honey is largely invert sugar, and if the adulteration is made of invert sugar, and flavored with honey, it will be very hard to detect. This applies to extracted honey. I know of no way to adulterate comb honey. I don't know that people have attempted to adulterate comb honey, but I would not like to say so off-hand. Whether it is profitable or not, I don't know.

This invert sugar, however, could be used only in extracted honey, and no one need fear to purchase of comb honey lest it will be adulterated in that way. I don't know of any adulteration of honey with invert sugar at present. As long ago as 1887, Dr. Wiley, of the United States Department of Agriculture, got out a bulletin on honey, and mentioned several samples of honey which he said he thought were adulterated with invert sugar, and put them in a suspicious class. Mr. A. I. Root was well acquainted with one of the samples, and was certain that it was not adulterated with invert sugar. The invert sugar can be made in two ways. First, by inverting the sugar with acid; and also by inverting the sugar by mixing with a ferment, or invertose. A very small amount of invertose will work very rapidly. Perhaps it will be used to adulterate extracted honey.

Crop Report for 1907.

"What is your crop report for 1907?"

Dr. Bohrer: I had no crop.

Pres. York: How many didn't get any crop this year? (6.)

Dr. Bohrer: While we used the extractor and got some honey, we will have to feed it back.

Exhibits of Bee-Fixtures.

"Can not some more definite arrangement be made for an exhibition of utensils, etc., at the next meeting?"

Dr. Bohrer: I believe every State should have a museum where bee-keepers' supplies and methods can be on exhibition all the time. Kansas has a fine place. We should have a room in the Capitol for exhibition. Let it be a school—a place of general information. A great many more would engage in bee-keeping if they knew how to begin, what to use, and where to get it.

Pres. York: Very few people would ever see an exhibition at Springfield. A State Fair is a good place. Chicago might be a good place. But go to Root's and Mr. Arnd's here in Chicago.

Gasoline for Foul Brood.

"Is gasoline a good remedy for foul brood?"

Mr. Wheeler: In regard to this gasoline question. It is quite a point, worth our experimenting with, at least. A man was telling me his experience. He thought by dipping the combs in gasoline, then taking them out and letting the gasoline evaporate, it would kill all the germs.

Mr. Moore: This thing has been discussed. It is not new. This is the proposition: Take a cupful of honey, and down in it somewhere is this germ of foul brood. How long would you have to apply the gasoline to destroy the germ? You never can destroy the last germ, until you have dissolved every drop of honey. It is absolutely visionary to attempt to cure foul brood by formaldehyde or gasoline methods.

Mr. Wheeler: He meant only empty combs.

Bee Demonstrations at Fairs.

"Would it be beneficial to the industry to make demonstrations of management of bees at State Fairs?"

Dr. Bohrer: Not to practical bee-keepers. Simply to other people for the sake of research.

Mr. Wilcox: Our State Fairs and Exhibitions are willing to appropriate money to promote any industry. The

question asked is: Will bee-keepers be benefited by paying an amount to make such demonstration? It is a question that has been referred to me, and I would like to hear any definite opinion on the subject.

Dr. Bohrer: If the demonstrations are made by a man of ability I have no doubt that they will be profitable. Some demonstrations and scientific lectures are very helpful. He should explain **why** he does things, and not claim to be a wizard, etc. If they will give scientific talks it will be profitable.

Increasing Convention Attendance.

"How can the attendance of our meetings be increased?"

Dr. Bohrer: Every one should consider himself a committee of one to get one member, at least.

Mr. Whitney: Increase the degree of prosperity.

Mr. Wilcox: Increase the invitations by circular letters.

Dr. Bohrer: Increase the spread of bee-literature. I will not under any circumstances in the future insist on buying a colony of bees when a man knows nothing of bees. Make sure that he knows something about bees before engaging in bee work. Don't encourage the man who knows nothing about bees. Get people to read bee-literature. Train the man and then let him keep bees.

Mr. Moore: I must go directly against Dr. Bohrer. By all means get one colony of bees. Bee-keepers as a class are the best class of people in this country. They are nice, clean people, and good citizens. I feel that bee-keeping lifts men up from mere money-making. Nature study is a great thing. As to circulars, etc., we spent $35 for letters to people all over several states. About a year and a half afterward we got $30 back.

Mr. Whitney: I have sold bees to people who don't know a thing about them. But I find whenever I meet them that they have a bundle of bee-papers under their arms. They are studying up.

Mr. Lyman: My experience in selling bees is that I first get the money, and after a while I get the bees back again.

Making Honey Vinegar.

"What is the best method of making honey vinegar?"

Mr. Wilcox: Can honey vinegar be profitably made from honey?

Mr. Taylor: I think not.

Mr. Arnd: It is not profitable, as you can not get enough money for it.

Mr. Moore: There is no demand for honey vinegar. It is hard to work up a demand. Cross & Blackwell's vinegar brings $1.00 a gallon, or 25 cents a quart. Cider vinegar brings 60 cents.

Dr. Bohrer: I can not find a sale for my vinegar.

Mr. Moore: The market is bare of pure cider vinegar. There is too much cheap stuff on the market.

Dr. Bohrer: You can not make good cider vinegar out of poor apples. There is too little sale to advise making good vinegar.

Mr. Arnd: I suppose the best method for a bee-keeper is just to take the honey that he has and mix it with rain water—about a pound to a gallon. You can start it with yeast or with "mother" and let it ferment in the old way. It takes about a year. But a quick process may be used. To get good, sharp vinegar you should take 2 pounds of honey to a gallon of water. This vinegar will keep, I think.

Chaff Hives vs. Single-Wall Hives.

"Are chaff hives better than the regular single wall hives, the year around?"

Mr. Taylor: I wouldn't have a chaff hive at all. There is no advantage that I know of, and there are great disadvantages in the bulkiness in handling the hives.

Mr. Whitney: For out-door wintering there is nothing better. Made of thin stuff they are as easily handled as the dovetailed hive. There are many advantages, I think. I have used both, and like the chaff the better.

Exhibits to Help Honey Demand.

"Is there not some way for this Association to exhibit at the Food Shows given in Chicago, and thus help the demand for pure honey?"

Mr. Boyden: I do thoroughly believe that there is a place for us to advertise honey at these shows. I understand that Mr. France and Mr. Hutchinson were a little bit discouraged at the recent World's Food Show. I think with more experience they will get better results. I believe it can be done. They had no bees there this year. I know bees will always attract considerable attention. I think there should be bees shown.

Mr. Arnd: I sent some honey for that exhibit. I received a very nice letter the other day and saying they were much pleased with the exhibit, and had many inquiries as to where they could get pure honey in Chicago. It was an exhibit where no one advertised his own honey. Each simply mentioned the place where the honey came from.

Mr. Wheeler: I helped Mr. France a little at the exhibit. I think it is a good thing, but I think it might be carried farther. I think a demonstration of honey would be a good thing. Mr. Hutchinson intended to bring some bees, but something happened to them.

Mr. Duff: Mr. Hutchinson said little, but I think he was disappointed with it. I was disappointed with it. It didn't impress me very favorably.

Dr. Bohrer: I received a communication from Mr. France asking for honey to put on exhibition, and I told him I had no honey good enough.

Mr. Whitney: I visited that exhibition and had a conversation with Mr. France. I was disappointed at the interest the people seemed to take. I said I was disappointed that the exhibition did not attract attention, and it is my opinion that this is no place for an exhibit. If there had been an observatory hive of bees there, or some queens, it would have been better.

Mr. Chapman: I believe an exhibit of that kind would be more attractive by showing some uses of honey, as at the Chicago Corn Show, where demonstrations of the use of corn meal, etc., were made. Few families use honey in cooking. If we could have demonstrations of honey in cooking it would add to the interest. You would thus open up a new field for the use of honey.

Mr. Arnd: No bee supplies were exhibited. Mr. Boyden: Mr. France came to my office on Wednesday or Thursday and asked us what we wanted to do. I said "What would you like us to do?" The next day Mr. Mr. France and Mr. Hutchinson came and asked about honey for the exhibit. I said I would furnish whatever they suggested. It was with the understanding that our name was not to be used in that exhibit. I did it simply to help out Mr. France and Mr. Hutchinson in the exhibit: I did my best to furnish good goods, so that there would be no discredit on pure honey. Sweet clover honey in a large jar will always look attractive.

Mr. Kimmey: The exhibit of 14 x 14 feet was too samll. If you expect to have any sort of notice taken of such exhibit, you are sure to be disappointed. You have to do something to attract the people. Get it in the papers.

Mr. Wheeler: The liquor exhibit took all the attention because they gave out samples. We should have demonstrated honey. The bees that were to be shown died on the way.

Mr. Kannenberg: Once there was a little boy who had a bantam hen. He was quite worried over the fact that she laid such small eggs. Finally he thought of a plan whereby he felt he could induce her to increase the size. So he procured a large ostrich egg and put it up in front of the little bantam hen's nest, and above it put these words: "Look at this and do your best." So we must keep on trying to improve our honey exhibits.

Pres. York: That was a very good illustration. It was a mistake not to have given out samples of honey at the Food Show.

Mr. Wheeler: Mr. France and Mr. Hutchinson did a great deal of work for that exhibition. I think the beekeepers ought to remember that.

Mr. Moore: I considered that a creditable exhibit. A live bee exhibit would be the most attractive and draw the crowd. But I go on record as against these exhibits. It is almost impossible to make them pay. The sentiment of this whole matter is to get two pounds of honey into the mouth of every man, woman and child. Don't send all the honey to the cities.

Publishers and Supply Dealers vs. Honey-Producers.

"Are the interests of publishers and supply dealers antagonistic to the interests of the producers?"

Dr. Bohrer: I can not see why they are. I think they go hand in hand. A man may manufacture and put on the market something that is a decided fraud. If publishers advertise a thing that is a fraud and push it, of course it is not right. I think, however, there is very little of it done.

Mr. Wilcox: Since this convention first opened I have several times heard remarks reflecting on the supply-dealers, and have read a great deal regarding the antagonistic position toward the supply dealers and editors.

Where did it originate, and how? I have never seen any cause for it. When I commenced bee-keeping I could have done nothing but for the information received from the catalogues of bee-supply dealers and bee-papers, particularly the American Bee Journal and Gleanings. I don't see what the producer would do without the supply dealers and publishers. I can not see how you can separate their interests. Their conduct might be wrong; they might adopt fraudulent means; but I don't know when they have. I believe that it is for our interests to preserve a better state of feeling between the producers and supply dealers.

Mr. Moore: I move that it is the sense of this convention that the publishers, bee-supply dealers and producers are essential to each other.

Mr. Taylor: It is necessary to make some distinctions here to understand the question. Mr. Wilcox discussed the question as to whether the supply-dealers and producers could get along without each other. The question is whether their interests are antagonistic. They can not get along without each other. The bee-supply dealers must have the bee-keepers, and the bee-keepers must have the supply-dealers, etc. That doesn't touch the question as to whether their interests are antagonistic. It is one plain question of bee-keeping that the ranks should not be very greatly extended. The interests of supply dealers and the interests of publishers of bee papers are very antagonistic to that. Their interests are in increasing the number of bee-keepers to as great an extent as possible. That is no reason why we should not pull together. And we may sometimes want to curb supply-dealers in some directions. and may criticize editors in regard tto their attitude on the honey market. But we should pull together. Criticism should be taken in good part. Publishers and bee-supply dealers ought to be able to stand criticism.

Mr. Moore's motion carried unanimously.

Wintering Bees Out-doors or in a Repository.

"Is it better to winter bees in chaff out-doors or in a special repository?"

Mr. Taylor: In this locality is is better to winter in a repository. It is a saving of stores if you winter bees in the cellar.

Mr. Wilcox: It is a saving of the life of the bees. I don't winter them successfully out-doors, but do in a special repository.

Mr. Whitney: I winter bees out-doors successfully. Perhaps if I had a good cellar I might use it. But it is a double-walled chaff hive that I use. I have had no trouble. As to stores, I don't know whether they take more or not. Some one says that they take less stores outside than they do inside.

Mr. Taylor. I have experimented upon that point several years. I weigh my hives when I carry them in, and when I put them out, and those that I winter out-doors I weigh the same way. There was quite a great difference in the consumption of stores in the colonies in the cellar and outside. Bees wintered in the cellar use an extremely small amount of stores, sometimes only 3 pounds; from that to 8 or 9. There was one time when they didn't winter very well, that they used considerably more in the cellar. As a rule, they don't use more than half as much indoors as out.

Mr. Whitney: Out-door wintering gives the bees an opportunity for a flight. That is very favorable. Perhaps that counteracts the larger amount of honey used.

On motion the convention adjourned to meet in 1908, at the call of the Executive Committee.

PROCEEDINGS

—OF THE—

38TH ANNUAL CONVENTION

—OF THE—

National Bee-Keepers' Association

HELD IN HARRISBURG, PENNSYLVANIA

OCTOBER 30 AND 31, 1907

Through kindness of N. E. France, General Manager of the National, we are permitted to use the Proceedings of the 38th Annual Convention of the National Bee-Keepers' Association held in Harrisburg, Pennsylvania, October 30 and 31, 1907.

The National Bee-Keepers' Association held its 38th Annual Convention in the Capitol, in the City of Harrisburg, Pennsylvania, on Wednesday and Thursday, October 30th and 31st, 1907.

The opening session took place on Wednesday, October 30th, at 9:30 o'clock a. m.; the President, Mr. L. A. Aspinwall of Jackson, Michigan, occupied the chair.

In opening the Convention the President called upon Prof. H. A. Surface to invoke the Divine Blessing, after which Prof. Surface gave an address of welcome as follows:

Mr. President and members of the National Bee-Keepers' Association:

I take great pleasure in welcoming you to the State of Pennsylvania, to the County of Dauphin, to the City of Harrisburg, not only as a citizen of the keystone State, but as a State Officer, as a resident of this State, as one who is also a member of the State Association and a member of our own and your own National Association, as a fellow bee-keeper, as one who is mutually interested with you in the things you are doing, and as one who helps to do things with his hands; I take pleasure in welcoming you with the spirit of fraternity and the spirit of sympathy. I remember a noted Bishop saying that when he was a boy he lived up in the State of Maine where they grew clover and pastured cows, and it was his duty to go out in the fall of the year, when the frost was on the pumpkin and the corn in the shock, and drive up the cattle. As he would go through the frosty and wet grass he would often get his little bare feet cold. He had some members of the Church, pastors and bishops and others visiting at their house. He asked them what he would do to keep his feet warm when he went after his cows. One of them said "Stamp them real hard to get the blood circulating and tingling through them." Another said, "My boy, it would be a good plan I think to get some fine switches and switch them vigorously until you get the blood well circulating in the skin and aglow and get them warm, and then you will not realize fully the sensation." The boy thought it was almost like the bee sting cure for rheumatism, that the cure was more vigorous than the ailment; and so he said to a third, "What would you recommend?" The third said, "I will tell you what I used to do when I was a boy." That touched the boy because he knew he was speaking with one who had been there. He said, "I used to go out in the morning and see the cow lying down in the field and I just gently punched her a little and made her get up—never strike a cow—and then I just cuddled my feet right down in the warm spot where she had been lying." He had been there. The boy felt he was talking with a man that could sympathize with him. So, Mr. President, on that foundation I will say for a few years at least I have been one of you in the practical work of bee-keeping. I have not had the time and opportunity to

go into the subject extensively, but I am a professional student of nature. My profession is that of natural history. I have no other profession; but I have studied this subject among others, and of all the subjects in nature I have studied there is nothing that has proven so interesting and attractive and all-absorbing as the honey bee.

There are many topics that are very well nigh exhausted, but when we come to bee-keeping we have a subject the depth of which has never been fathomed. For generations and generations bee-keepers will yet be studying their problems and mastering them and yet have more to study and learn. That seems to me to be encouraging. It is certainly much more encouraging to me as a student to look into the subject and see there is more to study, more to learn and more to know. It encourages me more to press onward and discover and learn and know, than to think that before long some day I may come to the end and know it all. And so you, as bee-keepers, are to be congratulated.

In welcoming you to the State of Pennsylvania, I would call your attention to the fact that this is, to a great extent, a German State. The term "Pennsylvania Dutchman" is not unfamiliar to most of you. We have a good many of my good German friends in the audience. They are steady, earnest, honest, progressive people, and not perhaps so quick as some, but more steady, and consequently in that regard they are very reliable. Their nature is well expressed by a transaction that I knew of having taken place between two of them in which one owed the other some money in connection with a sale and he agreed to pay by a note which would be paid in due time, when it came due. He drew the note and he said to his friend. "Now, Hans, you keep this note and then you knows when it comes due, and when it comes due you can comes and pays me." And so when the note came due Hans took the note over and said, "Now this note is due and I give you the money and the note, and then you keeps it and you knows it is paid." (Laughter).

Now, that just about expresses the honesty and integrity of the so-called Pennsylvania Dutchman. I have lived in several States and I find these people to be nice friends and neighbors, and reliable.

What we do need in this State and I believe what we need in every State, is a greater knowledge of our subject, a practical knowledge of our subject. We need to read more of the writings of scientific and practical men. We need to come into closer contact with scientific investigators who are making their work practical. On the other hand the scientific investigator needs to come into closer contact with the practical men. One cannot well do without the other. Such a meeting as this is for the purpose of bringing us together, and we hope, ladies and gentlemen, that you will make it yours. The City is open to you. The Capitol is open to you. I shall offer, if you can find time for it, Mr. President, to pilot the visiting friends through this wonderful Capitol Building. You have heard and read a great deal about it. Sometimes there may be a little ameliorating news to give; sometimes it may not be quite so bad as it has been reported; it may at times be like the fellow who went west and, in climbing over a precipice in the Rocky Mountains, fell to the bottom of the cliff. His associates telegraphed home to his friends and said, "John has fallen over the precipice, both legs and his arms and neck are broken, John is dead." In looking him over and in thinking about it they thought they should ameliorate that information to some extent and they found they could do it. They telegraphed, "A wrong impression has been given. John's left arm was not broken. News not as bad as first reported." So it is possible that by the time you look through this Capitol Building you may find the news is not as bad as at first reported. Let me say something that you will see by looking over the building, that you are meeting in the grandest building of its kind in America; the one constructed with the least amount of time; the one that was constructed with the least amount of money in its construction, whatever may be said about the graft and grafters. I have nothing to defend whatever. I have no remarks to make in favor of the persons who padded their accounts in order to obtain personal gain. Those persons are now under indictment and they will be speedily and lawfully prosecuted; but the fact

remains that it has not all gone to the aggrandizement of the personal individuals. We have a maginficent building. I hope you will see it and utilize it and enjoy it.

In the name of the State of Pennsylvania, the Pennsylvania Bee-Keepers' Association, and in the name of the City of Harrisburg, we welcome you to our city, and hope you will have a profitable and pleasant meeting. (Applause).

—THE PRESIDENT:

In response I cannot say more than that the National extends their hearty thanks, or rather I do on behalf of them, for the kind manner in which the Professor has tendered his address of welcome.

As remarks from the President perhaps are in order, I would say, ladies and gentlemen, fellow citizens, and workers in bee culture, that this is perhaps, as already alluded to by the Professor, the most ennobling pursuit in all the world, and I might say sublime. When we come to contemplate the works of the great Creator we find something that is sublimely grand and far beyond our reach, but in the matter of bee culture we find development in so many varied ways that we cannot but acknowledge it to be the greatest of all agricultural pursuits in respect to the diversity of knowledge. In the first place we have the wonderful workings of the hive in comb structure which is beyond the best mathematicians or geometrical minds fathoming. There is not a man in this audience who can say positively just how the bee gets the measurement for the respective cells she builds —the worker and drone cell sizes—and furthermore how she reaches the exact thickness of the cells which vary very slightly in thousands of them. Furthermore, we have then in this connection a man who is a thorough going bee-keeper, he naturally becomes a student of the anatomy and physiology of the bee, and there is so much to be reached, the depth is so great, it will take years and years before we understand it perfectly! and then this beautiful structure of the bee. the apparatus by which she collects pollen, and the tongue sipping the honey, and the digestive apparatus and the assimilating of the food element to produce the wax, we know only partially. And then, furthermore, a good bee-keeper ought to be something of a botanist. He ought to have some knowledge of insects; he should be an entomologist to be thoroughly familiar. I must say I am not as well up in these things as I ought to be, although I have devoted years and years to microscopic observation of the anatomy and physiology of the bee; and I have found errors upon errors in our standard works, but they have come down through difficulties; and, like inventions, they have been brought out gradually; we find development in all mechanical lines; it has taken the lifetime of an individual to produce that development; the object has been to produce a perfect article or approximately so, and it has taken perhaps a century.

I think perhaps that I should make a remark in reference to the early history of bee culture in connection with the easy methods of doing things. When I first studied the Quimby methods and became acquainted with Mr. Quimby it was easy going ahead to produce a little bit of honey, but we have got up a little now; we are in the high tension age; it is extremely high in the matter of a few colonies of bees. In the early days I picked up the chilly ones in the early spring and helped them into the entrance. We cannot do it in these high tension times. We must get what we can and let the rest go, and make our appliances so that we can use our efforts to the greatest advantage. There are things we recall in the early days of bee-keeping. For instance. as to the hiving of swarms, Mr. Quimby stated in his early work that there were charms about the swarming season that the indifferent beholder could never realize. Mr. Langstroth said it was one of the most beautiful sights in all the compass of rural economy. But today while it may be a beautiful sight, it is not quite as interesting; we want to suppress swarming; and there are a thousand and one things that come to us in this high tension age. Although we enjoy the natural history, the physiology, the anatomy, the comb structure, the diversified work of the colony, yet it is driven out of us by the hard effort of lifting heavy supers of honey; and the excitement to suppress swarming, the matter of wintering successfully, the getting them into winter quarters, and the feeding in such seasons as this, bring us to a high tension. My friend Mr.

Holterman was just telling me the amount of sugar syrup he has had to feed. it is depressing. Where a man had a few colonies in the early days and got 25 to 30 cents a pound for his honey, we thought it very nice. But after all it was not half as nice as it is today in the high tension. Look at the results today. We see great steam engines pulling trains at forty to sixty miles an hour under such heavy tension that every bolt is strained in the machine. We cannot help but admire them although attendant with some danger.

Now, in reference to the Association that binds us together as bee-keepers I want to say a word of importance about the National association.

Now, some of us pay in our dues every year, and never expect to get any returns. Perhaps most of us insure our buildings or our manufacturing plants and never expect to get the money we pay out on the policies. We certainly do not at our place of business. Now, there are some members who may think that there should be a direct benefit on this investment of one dollar a year, otherwise it is no use to them. Well, there are direct benefits to every member if they only reach out and receive them. But the main thing is, and I think it was a very terse remark that our Manager made to me a short time ago, that "if the building burned we expected to get the insurance; if we insured and the building didn't burn we couldn't expect it." There is a parallel case and in this organization that has done so much good in the defense of bee-keepers who have been injured by jealous neighbors, by troublesome neighbors and by unfortunate circumstances, it has more than paid itself to my mind; and the small investment of that amount should be like that of any charitable institution, go to the benefit of the ones that need it. That is what we want, ladies annd gentlemen. We want something out of every member that goes to benefit the man that is down, to help the underdog.

In the matter of the National Association there are some things to be considered that perhaps connect it as it were with the early days of bee-keeping. The first Association was the North American, and Mr. Quimby, who I was acquainted with, was its first honorary president; and I take this opportunity to thank you members of the Convention for my election, although I did not know of it until after I was elected, and did not expect it, and did not feel I was worthy of it, having done so little for it; and furthermore I had so much of the burden at home. I am an overworked man, have been as an inventor since I was nineteen, and I therefore thought best to keep out of as many offices as possible, although I have been burdened by quite a good many. I thank you, ladies and gentlemen, for this honored position, and especially so as Father Quimby annd Father Langstroth were of the first to honor this country with their efforts to make a convention.

Now, there are some things that have been realized. Mr. Quimby said he wanted to see bee-keeping made such a success that it would become a business; and he saw it, before he died, gradually developing, and now what have we here today?

Now, what we want is to hold together the interests, the bond of sociability, where we can exchange thoughts and ideas, where we can meet men we have not met only by picture and paper and have a real talk with them, heart to heart, so that we may more fully be in a position to work out the problems that are before us. As Professor Surface remarked, there are men fitted for different places and the practical man needs the professional man, so we need one to assist the other all the way through and the Convention is one of the finest institutions for that in the country; and above all, the work it has done in support of bee-keepers, as I stated before, who have been wronged, has more than paid for the investments that have been made by every member of this Association. (Applause.)

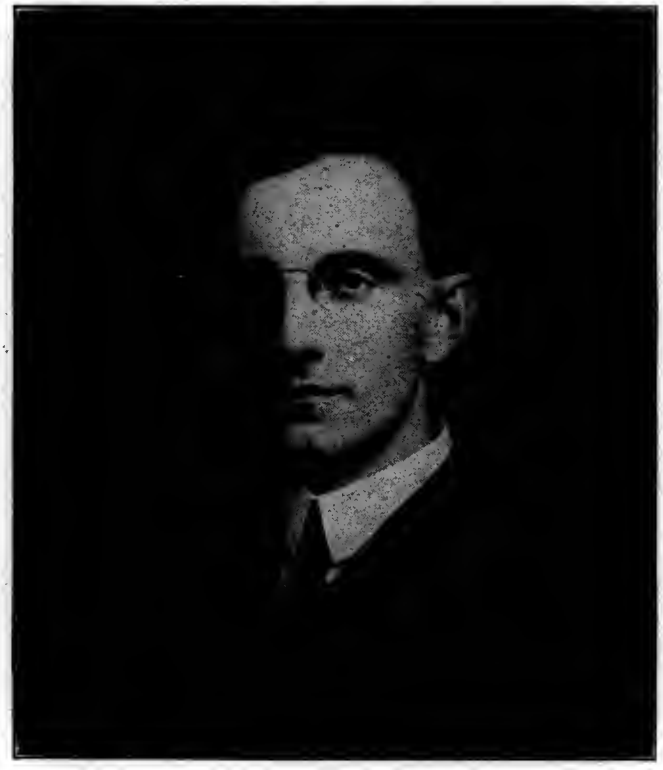
PROF. SURFACE:

I know that we have with us this morning one of the best known men in the subject of Agriculture in Pennsylvania, the Hon. A. L. Martin, Director of Farmers' Institutes and Deputy Secretary of Agriculture. Mr. Martin himself does not profess to be an expert bee-keeper, but is a sympathizer in the work we do. Two or three years ago he kindly said he would aid the bee-keeping industry in this state, by attempting, as far as was possible, to place speakers on agriculture on the institute force, especially wherever they were asked by citizens

of the state. That seemed to us to be very important, and in our state meeting last evening we discussed that subject to some extent. Mr. Martin is a busy man and we may not be honored by his presence at all of our sessions, and for fear he may slip through our fingers, I would like to make the motion that we hear at least a few words from him this morning.

Mr. Holterman: I second the motion.

The President put the motion, which, on a vote having been taken, was declared carried.



DR. E. F. PHILLIPS, Washington, D. C.
Courtesy Geo. W. York, ("A. B. J.")

Hon. A. L. Martin: Mr. President, and members of the National Bee-Keepers' Association: I was pleased to come into your presence this morning and listen to a portion of the hearty welcome rendered you by our worthy Economic Zoologist, Professor Surface. I feel assured that this Association will bring to Pennsylvania an inspiration in this very important line of animals or insects, the industry of bee-keeping. We need that inspiration in Pennsylvania. We need the most improved methods in handling this very important insect—important to almost all lines of farm operations. In the growth and propagation of the flowering plants of Pennsylvania, I can think of or name no other insect so closely allied to these lines of work as carried on in Pennsylvania; and on this account, and on account of our own, possibly selfish, inclinations, you are welcome within the borders of Pennsylvania and to its State Capitol.

Now, my friends, I regret very much that circumstances prevented my attendance at the meeting yesterday at which I understand the question of instruction and development of farmers' institutes was discussed. I know not of what the line of that discussion consisted, and hence I am somewhat in the dark as to what may have been the tenor of that discussion. I may say, however, that what I may have previously declared in your presence still holds. We have invited the State Bee-Keepers' Association of Pennsylvania to name instructors in this specialty and they will have our approval; and in cases where such are not named we have already placed on our regular institute force some eight instructors, men actually engaged in Pennsylvania in bee-keeping, to give instructions where called upon in this important line. And I may say by way of encouragement that in but very few counties in Pennsylvania these instructions are called for. Nearly every-

where the farmers are rapidly awakening to the importance of this line of work and its association and intimate relationship with that of agriculture. Not alone for its association with agriculture, but I may say that there are men in Pennsylvania today that are making handsome incomes from the sale of the bee and its products, and it is only the beginning, as it were, in that line.

This Association, we all know, has important business before it today, and it is not my object to infringe upon your time or the importance of the work further than to say that in so far as the division of farmers' institutes is concerned it joins with you heart and hand in the furtherance of this work in the state and in the nation. I thank you for your attention. (Applause.)

The President called on Prof. Surface to address the convention on the subject of "Bees and Agriculture."

Prof. Surface: Mr. President and Fellow Bee-Keepers: As the Irishman said, I want to say a few words before I begin to talk. I cannot resist the temptation to say I am very much gratified with the words that Director Martin spoke to us. It shows our Pennsylvania bee-keepers first, that there is a desire on the part of the state authorities to co-operate in the work of agricultural extension. We hear a great deal about agricultural extension now-a-days, and apiculture is one of the parts of agriculture. It shows also our visiting friends from other states something about how we can do it in Pennsylvania. I believe that this is an ideal condition for our State Bee-Keepers' Association composed chiefly of local societies and organizations to co-operate with the state authorities. Mr. Martin has placed in his hands an appropriation of $40,000 every year for the farmers' institutes. He proposes to use a part of that to supply the calls for speakers in bee-keeping, appointing such speakers as our state association may wish to recommend. I believe that is almost an ideal condition of co-operation of our state association with the state authorities, and the utilization of the state funds appropriated for such purposes. (Applause.)

It is especially gratifying to me to have Mr. Martin here this morning to say what I assure you he would have said had he been present last night, that he would co-operate with us in this work of promoting the study of bee-keeping in Pennsylvania.

Lest perhaps I may not have another opportunity to take up another topic that is not exactly in relation to horticulture, I wish to show you another way in which we are extending the interests of bee-keeping in Pennsylvania, and this is by local demonstrations and field meetings to which the public is invited. I have two photographs taken here in the Capitol Park. The tree immediately to the southeast corner of the next building contained a box of squirrels. Last summer a very large swarm of bees appropriated one of those boxes, and I appointed a day and named it in the newspapers when I would take the bees down from that box and hive them, to show the public how it was done. The crowd was so thick that at first I was unable to work. They were slightly afraid at first, but after a while they became very much interested in the subject of bees and bee-keeping. I know of considerable money as well as I know of several persons who went into keeping just a few bees for themselves, for the interest or study or profit, as the result of such a demonstration as that.

The other picture I have to show you is taken in my own apiary in Mechanicsburg. There were some persons present in the room at the time, who are shown in this picture, besides myself. I show how to change the bees from the old style box hives, which is the curse of bee-keeping in Pennsylvania, to the modern bee-hive, which is the only means by which we can keep bees properly. This was done publicly, and the picture shows the visitors crowding around us as were transferring the bees from the old hive to the new.

Now, I hope to commence to talk on "Bees and Horticulture." This is an old, time-honored subject. If it attracted the attention of the early horticulturists and bee-keepers it was because of its importance to them, the consequence being that it is a subject that has been turned over and looked at from almost every possible side. We can add just one or two new points, and those points become more important in relationship to that subject than something entirely outside of it. I mean to say I believe that a new point added to the subject of bees and horticulture is of more importance

than, for example, the subject of the bee-sting cure for rheumatism. This touches bee-keepers and horticulturalists. I shall not go into the well known details of the relationship of the bee to the fruit grower in being a necessary feature to carry pollen from flower to flower. This is already too well known and would be entirely too elementary for me to discuss at present. Neither shall I discuss the beautiful adaptations and structure of the bee for carrying pollen, and the necessity of pollen for fruit, and so forth. But I do wish to take up three points. The first is the relationship of the bee to the mature or ripening fruit. We, as bee-keepers, know that we are often accused of harboring pests which are injurious to the fruits of our neighbors by puncturing and sucking their juices and ruining them. Last summer over in Camphill, when I lived there, a neighbor came and said: "Your bees are puncturing my grapes and sucking them dry." I had an assistant examine, and he found wherever the grapeskins were already punctured the bees were at work, but he found no cases where the bees were doing the puncturing or were working upon them themselves. Where they had been cut by the yellow jacket or by the skin breaking by rot spreading the bees were at work.

I placed several bunches of grapes in a hive, some of them punctured and some I left entire. I found the grapes punctured by even a single pin hole were sucked dry by the bees. Those grapes left entire were not injured. This last summer I repeated the experiment with plums. I put the plums in an old pan. I set that pan in the top of the bee hives and this very morning I took that pan out—I myself did not see it until this morning. Last summer I took those plums from a tree; two of them I punctured with pin holes, and two of them I left entire without puncturing and two of them were commencing to rot; and for the sake of seeing the results of placing plums, of which the skin was broken, where the bees could get at them, I put the rotting plums in as well. Now, you see what was done. The two plums of which the skin was broken are practically eaten out and sucked out until they are shriveled. The two plums of which the skin was not broken are simply dried like prunes, and the bees never got at their pulp or substance at all. The two plums that were commencing to rot continued the process of decay. These two plums in the middle were not punctured, and you see how perfect they are, the skin is not broken. The others were the same sized plums, the same thing in every regard, only I stuck the pin holes in them. There, it appears to me, is an object lesson. Those plums were put in the hive nearly two months ago, because they were put in there about the 1st of August.

You see, then, for point number one the evidence that the bee does not itself puncture fruit, but after the hole is made it may of course eat out and suck out the pulp of that fruit.

Point number two I cannot illustrate by specimens with me, but I shall bring specimens tomorrow. The bee has been accused of being detrimental to horticulture, in carrying the germs of pear-blight. Now, pear-blight is the most destructive enemy of the pear tree in this state without any exception; it is worse than the San Jose Scale. I would rather have a dozen trees with San Jose Scale than one with pear-blight started in it. If the honey bee be the sole agent of carrying pear-blight then the horticulturalists are justified in condemning the bees. If there are other agents, then they are not justified in condemning the honey bee alone.

To demonstrate this principle, a few fruit growers have objected to the presence of the robin in their orchards because it carries the San Jose Scale upon its feet. If the robin were the only means of carrying that they would be justified in condemning and destroying the robin; but that pest is carried by no less than a dozen other agencies, the chief of which is the English sparrow. If every robin in our state were destroyed the San Jose Scale would spread practically as rapidly as though it was not condemned for that purpose. If the robin were the only means of spreading that pest legislation against the robin would be a good thing. If the honey bee be the only means of spreading pear-blight as it goes from the infected blossom to the non-infected blossom then the pear growers would be justified in fighting against the presence of the honey bee.

I speak again from personal experience. This spring in the early part of May I planted a number of pear trees

just received from the nursery. Those pear trees were supposed to be in good, vigorous, healthy condition. Being young trees they had no blossom. It was during cold, wet weather. The bees were not flying. Some of these trees shortly aftper planting and pruning commenced to show the presence of blight as indicated by the blackening bark. Some of them went on and blighted clean to the ground and died. I am convinced that the honey bee was not anywhere near one of those trees that died with the blight. Those trees were inoculated with the pear-blight without the agency of the honey bee. I know to a certainty that the disease is carried by other means entirely than the honey bee.

I have my serious doubts as to the honey bee being an important enemy in carrying that dangerous and destructive disease to the pear tree. There are no words to express the importance of pear-blight to the pear grower not only in this state but clear to the Pacific. It is the chief enemy of our pear trees.

I am well convinced, then, in summing up what I have observed during the past summer that pear-blight does spread and does kill trees without any relation whatever of the honey bee to that tree or to the spreading of that disease. Whether the honey bee ever does carry that blight or not I cannot say with certainty, but even if it does its relationship to that blight would be only the same as the relationship of the American robin to the San Jose Scale, one of the many agencies that would carry it. There is no need of condemning the honey bee on account of the spreading of the pear-blight any more than the robin on account of the San Jose Scale.

Mr. Hershisher: What effect would it have upon the fruit crop of the pear if the bee was excluded from it? In other words, does the bee do as much good as harm?

Prof. Surface: This year the pear crop is shorter in this state than it has ever been before within my recollection, and this year there were fewer bees flying during the time of pear blossom than I have ever before seen. There may be a definite relationship and there may not be, but I have seen trees bear fruit where there certainly were no bees flying to them. On the other hand, we do know that bees did not fly during fruit bloom all this spring in our region, and there were comparatively few fruits on the trees. I believe especially that the plum needs the bee for carrying its pollen more than any other of our cultivated fruits. The absolute dependency of the pear upon the honey bee I cannot state, but I believe it is an important and essential agent, and that it does more good than harm. I am not discussing in my paper the importance of the bee in carrying pollen, because it has been worked over so much. Mr. Gabriel Hiester, who is the most noted fruit grower in this part of the state, and who is President of the State Horticultural Association, at our first annual meeting presented a paper on the subject of "The Bee and Horticulture" in which he brought out plainly the relationship of the bee to the blossom in its necessity for carrying pollen. That paper is printed in our proceedings and I shall have it here for distribution by noon today so that those who wish to read that paper may do so.

Mr. Hershisher: My purpose in asking this question is not that we are not all convinced that the bee does more good than harm, but in order to get it upon the record so that when people confront us with such an argument we can show them it is the opinion of scientific men that the bee does more good than harm.

Prof. Surface: In my opinion there is essentially a relationship between the bee and blossom of which one is necessary for the existence of the other.

The President: You find that all through nature.

Prof. Surface: Yes. The Almighty that planned these things did not plan them in vain. It seems to me if one should ever doubt a great plan, a great design, or a great designer, he would exclaim with the poet:

"No more the misty vale of doubt I trod;
My reason saw, my soul confessed to God."

Mr. Hummel: There being no pears in this part of the country was owing to early frost in the spring.

Prof. Surface: My third point is involved in the subject of spraying. This article had considerable circulation in the papers of this state, and I think it has found its way into the public press elsewhere. The title was:

"TREE SPRAYING KILLS BEES."

"Thousands of Insect Honey Hunters Die from Sipping Poison."

Tree spraying for the San Jose Scale now being conducted at the instance of the State Department of Agriculture has aroused the displeasure of the keepers of bees in the vicinity of Norristown, owing to the havoc it has created by killing thousands of these honey gatherers. Probably the heaviest loser is John C. Detwiler in Whitemarsh who says that his bees have died by the thousands since the trees in the neighborhood have been sprayed.

Mr. Detwiler says: "Bees require large quantities of water, especially at this season, and will obtain it from almost any blossom or wherever possible. This water is then mixed with the pollen in the process of keeping the hive."

"At present bees are feasting upon the opening blossoms, and almost as soon as they sip therefrom the trees of which have been sprayed for the extirpation of the San Jose Scale, they become affected by the poisonous liquid and speedily die."

That seems to be pretty straight because it gives Mr. Detwiler's name and address.

I replied to that by an article entitled:

"BEES AND TREE SPRAYING."

State Zoologist Says Sulphur Wash Kills Scale But Not the Insects.

My attention has been called to a newspaper article entitled "Tree Spraying Kills Bees," and I beg to write you concerning the error in this, as it is an injustice to the men who wish to save their trees from the terrible San Jose Scale. In the first place, the spray for the San Jose Scale must be applied before the trees are in blossom, and our inspectors and demonstrators have never sprayed any trees while in blossom in order to kill any scale insects, and therefore there would be no honey bees around the trees sprayed for San Jose Scale at the time the spraying was done. The lime-sulphur wash is caustic, but is not a "poisonous liquid." Bees could not be induced to sip it, and if they should do so they would not be killed by it as they would by an arsenical poison.

The bees around Norristown, as elsewhere in this state, may be dying from foul brood or another trouble, sometimes called "spring dwindling," but they certainly are not killed from the effect of any spray used or recommended by this office for San Jose Scale.

May I take this occasion also to call the attention of the public to the fact that we do not spray blossoms for any pest known? In other words, no trees should be sprayed while in blossom. Spraying at such time with arsenical poison may have the effect of killing bees, but the lime-sulphur wash is not an arsenical poison, and is not sprayed while the trees are in blossom, and therefore bees are not killed by any spray used for this purpose."

I want that to go on record. We don't recommend spraying of blossoms of any kind at any time when in bloom for any pest whatever. It is wrong horticultural practice. The man who has trees in bloom and has an ounce of sense will not spray his trees while in bloom. That is not proper. That would injure his fruits. That is a cheap and wholesale method of thinning it down. It is entirely apart from the subject of bees. It would be injurious to fruit to spray in bloom.

If the trees be sprayed when they are not in bloom, either before or after blossom, I don't care how severe arsenical poison you use that will not kill the bees. The only way to kill them would be to get poison into the blossoms.

Now, concerning the impression that bees are killed by spraying, nothing could be more erroneous. As a remedy for the San Jose Scale fruit growers are using either the oils or caustic washes, such as the lime-sulphur wash, a very simple material, but when it is combined it makes a different compound altogether. It is entirely a different subsance from either of the two original ingredients. It is just like water. Water is entirely different from hydrogen and nitrogen, although they combine to make the product known as water. So in the lime-sulphur wash, after it is boiled it is quite different.

In spraying with oils the bees would not touch the oily solutions. You know if you put a little piece of oiled paper or cloth covered with oil near a hive the bees will avoid that. If the trees were spread with oils the bees would avoid them. And as to the lime-sulphur wash compounds, we have had a

couple of those standing in front of our hives for over two weeks at a time and not one bee has attempted to drink from them. What is more, we have sprayed bushes and trees around our hives, and we have had our hives covered with spray two or three different times in the year, and none of the bees were killed by this process, except those actually flying at the time of the spraying and going through the spray and the liquid coming in contact with them as they were going through it when it was as thick and heavy as a fog.

Not only did we spray these trees with the lime-sulphur wash before the bursting of the buds in the spring time, but we also sprayed them just after the petals fell, and there was no injury to the bees then. The two important times is in the spring before the buds burst, for the scale insect and after the petals fall, within a few days from the time the petals fall, using arsenical poisons for the cuddling moth, and again ten days after that with something like Paris Green or the Bordeau mixture.

None of the bees were killed by the process of spraying which I came in contact with. I feel it is quite absurd and unjust to the fruit growers and bee-keepers for these articles to be constantly circulated by editors who know very little indeed about fruits and think they know a great deal about such things. They take it upon themselves to to take up horticultural practice, especially the grafting that goes on by every person who holds a state office. That is about all they do know about horticulture. They express their ignorance constantly in such articles as the first I read. Yet the scissors were used freely, and that article was clipped and copied and many fruit growers and bee-keepers were led to think there had been serious loss by the bees being killed by spraying.

Let us go forward with the good word that the best thing possible in an orchard is a number of bee-hives I have had hives in my orchard, and I am well satisfied with the result. I know one of the most extensive fruit growers in Pennsylvania, Mr. A. I. Young, of Northeast Erie, provided ten hives with bees and put them in his orchard, and told his neighbors if they would simply take care of the bees and see the hives were kept there that they could have the honey and the increase. He did that for the purpose of having his fruit fertilized by the pollen carried by the bees. (Applause.)

Mr. Hershisher: Mr. President, I placed a few bees in a buckwheat location this summer, and while talking upon the subject, I remarked to a gentleman who was a very large grower of buckwheat that the presence of the bees would probably result in an increase yield of buckwheat, on account of the cross pollentation, and that they were beneficial to fruit, etc. He was rather disinterested in the matter. He had no objection to the bees, but he remarked "They say not. They are rather an injury than otherwise." For the purpose of getting a scientific expression upon record, I would like to hear what he Professor has to say upon that subject, and also Mr. Holterman, who has had more or less to do with scientific matters in Canada. It is for the purpose of being able to say what the scientists of the country think about that subject. My notion is that bees do good to buckwheat and they do no injury; that the petals of the flowers when they fall, if the bee did not gather the honey, the honey would go into the ground and be lost. The bee gathers the honey and saves it and at the same time does good to the grain and fruit crop.

Prof. Surface: Mr. President, I sowed a field of buckwheat after the 1st of September this fall, that was very late, as you recognize, and it was sowed for the purpose of furnishing food for the bees for winter stores and the crop I could turn down to enrich the soil. I believe that the value of fertilization alone was enough to justify the cost of that planting, and I got the feed for the bees in addition to that. So that I am well satisfied with the result. But, late as it was sowed, I was rather surprised at the fact that it came on well and the seed set well, and that the buckwheat was harvested and put in the barn only last Saturday, so that it went further than I expected. I saved it for seed. I had my bee-hives lined up all around it so that if the bees had been detrimental there would not have been very much grain set. In the buckwheat region of this state is where we have the greatest success in bee-

keeping. Take the New York bee-keepers, Mr. Alexander and some of those men, their success depends almost altogether upon the fact of the buckwheat. I might say I never heard the suggestion that bees were injurious to buckwheat until about three or four days ago, when it came to me plainly in the same way, and of course that is prepared by one of these nature fakirs of which you have heard so much; and we have prophets and false prophets, and it is only necessary to call attention to what is being done in the parts of the country where buckwheat and bees seem to be companions.

Mr. Holterman: Mr. President, ladies and gentlemen: We have some difficulties to contend with over on our side, and it is not in our case nature fakirs that get up these stories about the injury done to buckwheat by bees, but in all sincerity I believe by local men who understand nothing of the construction of flowers, and they are sometimes quite sincere about it. As far as my experience goes, it has been shown time and again, barring other conditions, that the best yields were obtained in the neighborhood of where the apiaries were. A buckwheat blossom is sometimes blighted by heat; and we have been trying to get our department to carry on some experiments. We know there is a good deal of evidence, but it seems to be more or less distant. We have been trying to get our department to conduct their experiments near home, and the result has been such that we as bee-keepers are not afraid of having that done.

Now, as to the matter of spraying, there is just one point I am not as sure on as Prof. Surface seems to me. We had the same thing brought up this summer by bee-keepers as to the injury that resulted to bees from spraying, not while in blossom, but before and after, and we sometimes hear what seems to be pretty convincing, and nevertheless it is not; but as I see the matter—and this is where there may be difficulties, and if there are we must give way to the horticulturalist—in certain sections bees sometimes find it very difficult to get water. Localities vary very much in that respect, and the experience in one neighborhood may be that there is no such thing as bees gathering this fluid mixture which is being sprayed, and another locality where it is dry, and difficult to get the water, where they will do it.

The President: Haven't you got any wells over there?

Mr. Holterman: Yes, but our bees don't go down in the wells.

The President: I have a water feeder in my yard, and the bees take out about two gallons per day.

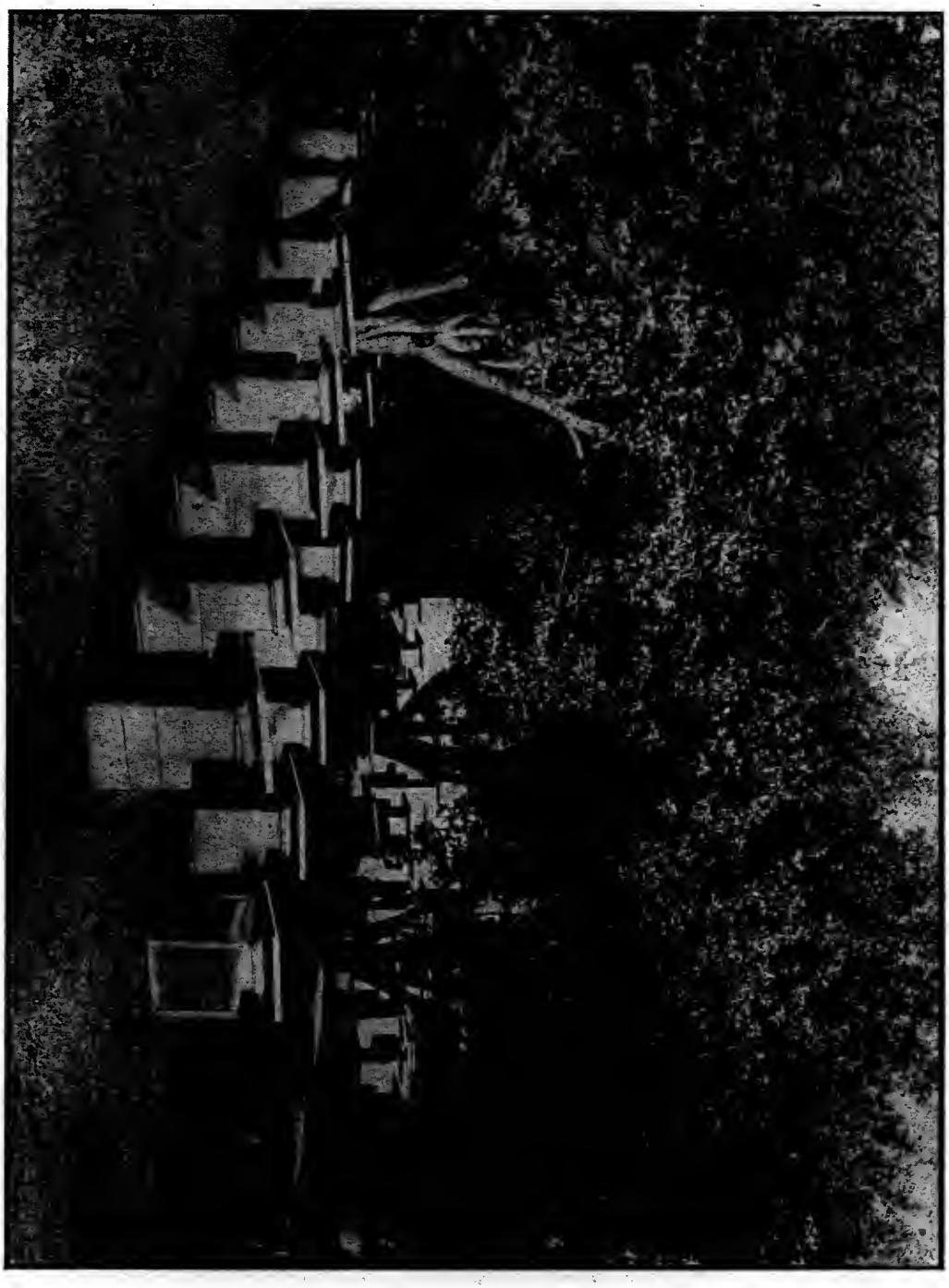
Mr. Holterman: It is possible that the bees may be injured by taking this mixture, although chemically we may see that there is nothing injurious in it because the percentage of arsenic is so small; but the nervous organization of the bee is so high that it is easily affected by something which perhaps other insects or animals would not be affected by, and there may be something in that mixture which may destroy them, and if there is, the point I want to bring out which may be of value to the convention, is, as Mr. Aspinwall has already said, we can to a very great extent overcome that, and bee-keepers are very negligent in that respect, and that is to provide water systematically for the bees. There are a great many bees being destroyed because that is not being provided. The main thing is to have it there the first day in the spring, and have it there continually. If they do not take it up, it is because you don't continually provide it so that the bees know they can go there at all times and get that water. And it is astonishing the amount of water they will take up; and when they can get their water in that way, providing there is an injury which may be caused by gathering from other sources, it can almost be entirely overcome.

Mr. Martin: Would running water within ten or twenty rods of the colony be sufficient?

Mr. Holterman: No. Bees cannot very well take running water; it should be still water or even, I would say, stagnant water. If the water is running, and the shore is constantly washing, how can that bee get at the water without doing injury to itself?

Mr. Martin: It is not the distance but the condition of the water?

Mr. Holterman: It is the condition of the water. A good way is to have a barrel with water in it and have in that barrel a small hole out of which the water is leaking constantly a lit-



APIARY OF WM. McEVOY, FOUL BROOD INSPECTOR OF ONTARIO, CAN.
Through kindness of Geo. W. York, (American Bee Journal, Chicago.)

tle, and that upon a board with sawcuts and one thing and another in it, so that there are a great many places where the bees can go and get that water.

The President: The distance has something to do with it, also. On account of the neighbors nearby having wells, and for the reason that I do not want my bees annoying them I have had a feeder for years; I have have put that in an especially sunny location; and when the bees cannot fly five rods without becoming chilled they will visit that feeder even in the cold, chilly days of spring. I have found fifty colonies would take out two gallons per day.

Mr. Hershisher: It is the opinion of Mr. Holterman and the President that the warming of that water would have any effect upon spring dwindling?

Mr. Holterman: Yes.

The President: Decidedly. I warm the water by a tea kettle of warm water every cold, frosty morning.

Mr. Hummel: I have a small stream of running water within 100 yards of my apiary and the bees gather there, thousands of them, but the proper way is to have small troughs and a little salt in them.

Mr. Moe: Let me ask just a question or two in the line of this paper, and also on the buckwheat question. The impressions there do not correspond with my observation. I would like to ask these scientific men if pollen is dry or viscid—that is, will it have to be carried by the bees? Does the pollen ripen about the same time as the pistil does or at different periods? I am in a buckwheat region, in the state of Wisconsin, and while I have raised buckwheat, and while I have had the finest seed and the best yield, the bees worked very little on the field. The season differs with me both in regard to the honey and in regard to the yield of seed. Another season when the seed was fine there was about two days that I discovered the bees working on the field of buckwheat. The yield of wheat was all right.

The President: Mr. France, our general manager, said it was enough; two hours will fertilize the blossoms for one day. I agree with him.

Mr. Moe: The bees simply worked in the morning for a little while. The fertilizing on one day won't ripen pistils that come the next day or the next week or after that; the buckwheat continues for three or four weeks to bloom.

The President: Do I understand you the bees worked but one day?

Mr. Moe: About two days.

The President: We know many kinds of blossoms are fertilized by the wind, notably Indian corn, and it is possible that buckwheat is.

Prof. Surface: I can only give my opinion and my impression, I cannot state with certainty; although I did not see the pollen carried as, for example, that of timothy or corn, I think it is not a dry or wind carried pollen. I think the buckwheat blossom is self-fertile, and that the bee is not a positively essential agent in setting the seed. I think the seed will set without the agency of the bee, but that the bee is an aid to insure an abundant setting of the seed.

The President: Cross fertilization there is the point gained.

Mr. Hershisher: I want to say in order to centralize what Mr. Moe has said, that this gentleman that expressed some doubt as to whether bees would benefit buckwheat also stated later this fall, after the buckwheat was threshed, that last year before my bees were in the locality they had a bad crop of straw and a comparatively small crop of buckwheat, while this year it was vice versa, and that he now regarded the bees as a benefit.

Mr. Holterman: I think we should be very careful not to go beyond what is legitimate and right. You may get a cery good crop without the bees, but as Prof. Surface has said, there are many instances where you would get a good crop when the bees are there, when otherwise you would not.

The President: I have never examined the blossom microscopically, but it may be possible it is a perfect blossom.

Mr. Pressler: I would like to ask Prof. Surface if it would be possible to have this plate of plums photographed, which he has shown here, to show that it was actually in the hive, and have it form part of the general report which was sent out.

Prof. Surface: I am willing to photograph it showing it right in the hive and photograph it at close range showing the details, if desired.

Mr. Root: I want to ask Prof. Surface one question. I understand that Paris Green is an agent that will poison bees and will only do it when the

liquid is sprayed on the blossoms or when trees are in bloom. I understand that the Bordeaux mixture does not poison bees even if it is sprayed on the trees while in bloom; in other words, that the Bordeaux mixture does not poison at all.

Prof. Surface: That is true, but fruit growers who have adopted it do not spray while in bloom; it is almost sure to result in the weakening of the crop, and often times you will have a one-sided fruit. For instance, you will see an apple practically half developed, and that may be due to just such causes. Sometimes a cold wind striking one side of the undeveloped pistil will do it.

Mr. Moe: Will bees carry this arsenical poison and store it in the honey so that there is any danger from that source?

Prof. Surface: I think not.

Mr. Miller: In our section of the country we have great crops of buckwheat, and years ago people never thought of sowing it until along about the 4th of July. Since the bees have got into that country they sow from the 1st of May, and they get good crops unless they have a wet time during the bloom. This year the buckwheat season did not yield. During that season we had a continuous rain and the bees did not fly well. I am convinced that the bees are a great help to buckwheat and no injury at all.

Mr. France: In our state of Wisconsin, at our state conventions, which are held in the Capitol building, there are all the way from five to fifteen state organizations meeting at the same hour in different parts of the building, and repeatedly one of the horticulturalists, who has been for several years President of our State Horticultural Society, has come in person down to the Bee-Keepers' convention making it a free offer to anyone who would bring twenty or more colonies of bees to either of his apple orchards that he would give them a permit to put them anywhere in the orchard; he even went so far two years ago as to state that if any person would furnish bees for five years he would furnish them a house for a year free of rent. He wanted the good of those bees to fertilize the apple bloom. It is A. D. Barnes, of Wapaca, Wis.

Mr. Hummel: In regard to bees doing damage to fruit, bees certainly will do no damage to fruit that is perfectly healthy and well. You can put sound and solid fruit in a hive and they will not attack it, but as soon as it is punctured or stung by the hornet or the yellow-jacket or any other pest, just that soon will they destroy it. In regard to fertilization, we know we have different varieties of fruit and if it is not pollenized from insects it will not bear. So we must acknowledge that bees are a benefit in regard to fruit culture.

The President: We will now take up a letter to be read by Mr. York from Mr. E. W. Alexander.

Mr. York read letter from Mr. E. W. Alexander as follows:

Delanson, Oct. 28th, 1907.

To the Officers and members of our National Bee-Keepers' Association, convened at Harrisburg, Pa.

Mr. President, Ladies, and Gentlemen—In accepting your complimentary invitation to address this important association, let me assure you that it is with many thanks for your kindness, in giving me an opportunity to briefly call your attention to several important matters connected with our business. The many advantages derived from a plurality of queens in a colony is a subject well worthy your attention.

We must not expect that this new departure from natural law will be crowned with perfect success all at once, it may take some time to perfect this plan, so as to derive its whole benefit, but we have certainly made a good start, and the fruits of our labor in this line are already being realized. We can now have with but little trouble our colonies as strong in working force at the commencement of the harvest as we wish. We can also supersede any undesirable queen without the colony ever becoming queenless, and we can have a surplus of laying queens in nearly every colony, ready to use in making our increase instead of cells or virgins, and if we can keep these queens as safely through the winter season as through the summer, then surely we can make an almost unlimited increase during the season.

A very important part of early summer management is in removing all caped honey from the brood nest. This is one thing that is sadly neglected by many of us, and frequently before we are aware of it the brood nest is so reduced in size that the colony be-

comes almost worthless, for the purpose of securing a surplus.

The size and condition of the brood nest is one thing we should ever watch as the engineer does the amount of steam he has on his boilers. For without a large quantity of continually maturing brood during the summer season, we cannot expect the best results from our bees. Another subject I wish to touch upon is the value of extracting with gasoline power. I wish I could impress upon the mind of every producer of extracted honey the real saving of both honey and labor in using this cheap power to do the most laborious part of our work. The subject of keeping a large apiary at home instead of several small out yards is fast attracting the attention of many honey producers. A short time ago I stood almost alone on this subject. But now judging from a large correspondence I find there are almost hundreds of our most extensive honey producers that are fast changing their former ideas on the subject of over stocking an ordinary location. With us the summer of 1907 has been the poorest season for the secreting of nectar of any year during my memory. Our August harvest is the only harvest we have that we expect to secure any surplus from, and it proved almost a failure this year.

We had only four days during the month that our bees worked well on golden rod and buckwheat. During June, July and August, we had only an occasional day that the flowers secreted nectar. Still during this very poor season our apiary of about 600 colonies gave us a surplus of nearly 46,000 pounds, this is doing as well per colony as any small apiary I know of in this part of the state. These results of the past summer have convinced me more than anything heretofore that when the flowers are secreting nectar there is enough within their reach for all the colonies we are likely to keep, providing it is within the bonds of reason.

If all the honey producing flowers within a circle of 7 miles in diameter could be visited several times a day by our bees we surely would secure far more honey than we do.

I wish I could be with you to discuss the merits of this, to me, very important part of our business.

In the above I have briefly called your attention to a few of the many important parts of bee-keeping, with the hope that they will be discussed in a manner so the inexperienced will become interested and derive some benefit along these lines. I am sorry my health is such that I cannot attend these useful meetings with you but as that is impossible I gladly offer you my mite as the poor widow of old. Hoping it will help some less fortunate Brother in removing the obstructions from his path to success.

E. W. ALEXANDER.

Mr. Maynard: With your permission, Mr. President, I would like to reopen the subject of spraying. I would like to ask Prof. Surface if in the solution that is used for spraying apple trees the bees work on the bark.

Prof. Surface: There is no doubt bees are often found on the bark of trees in orchards sucking the sap that exudes through the bark. I suppose the gentleman refers to that in his question. It is rather important and should go upon the records. The bees do suck such saps, but they are only taking away the saps that exude through the bark from other causes such as fungus diseases and insect borers. That is not any indication that they are doing any injury or damage. It is like a mass of gum which appears upon the peach tree, if you take that away more will come unless you remove the cause. So that the mere presence of the bees, where trees are injured and sap is running out, does not indicate the bees are responsible for that injury.

I have a question to ask upon a subject touched upon in this valuable letter which has just been read; it is concerning golden rod as a honey producer. I wish to know especially from bee-keepers south of the central part of Illinois, Indiana, Ohio and Pennsylvania if they regard golden rod as a honey producing plant; and bee-keepers north of that line, if they regard it as such; and those who do not, why do they not think it so. I believe I have in mind something that may work out from the answers that may be given.

Rev. N. E. Cleaver: I understand there are some sixty varieties of golden rod, and I am myself about on the division line spoken of. For many years I thought golden rod did not yield any honey. For thirty years I never saw a bit of golden rod honey,

and yet there were thousands of acres of golden rod all around us. Within the last two years when I had an apiary in the Alleghany mountains I have found golden rod was one of the best honey producing plants I have ever come across, but it is a different kind of golden rod; it is not the golden rod we have along the river; it is the mountain golden rod.

Mr. Hummel: I hail from Union County. We have golden rod in our part of the County quite numerous that produces quite a bit of honey, and in regard to pollen it cannot be excelled.

Mr. Hershisher: I live in Erie County, New York, and golden rod is sometimes an excellent honey producer; in fact some twelve or fourteen years ago I produced as high as eighty pounds of comb honey per colony from golden rod. When you get it pure it is one of the nicest honeys I know of. It is just a trifle darker than the white clover honey—a sort of straw color. I took a sample of it down to a convention at Geneva, New York, and showed it to a number of bee-keepers there and asked them what kind of honey that was, and none of them knew; they couldn't recognize it. I asked them if they knew what golden rod honey was. Some of them thought it was a darker color. It was after buckwheat and before aster bloom. I am sure it was golden rod honey. I saw the bees come in loaded with it. There are two kinds of golden rod. I think perhaps three kinds. One is quite low and has a bloom that is good for nothing; then there is a very tall kind that the bees work on; then there is a low flat kind with rather an inobscure blossom that the bees work on.

Prof. Surface: Is the blossom mostly on one side of the stem?

Mr. Hershisher: No; it is perfectly round; it grows in a bunch. It is not a sure yielder. I have had two or three crops in the last few years; and it has the same conditions as Mr. Cleaver named; and I get those conditions in that lower country, which would be something like the conditions that exist in the mountains, then I get a yield of golden rod; and when there are the conditions that exist in the southern districts than I think I get no yield.

Mr. Klinger: I am from the central part of Pennsylvania, and we have quite an amount of golden rod bloom, but I find the bees working upon only one kind, the kind that Prof. Surface has alluded to, I am not able to give the name. I have found them working on the one variety and there is one feature about it, they work principally in the afternoon from about three o'clock on until it gets dark. I think perhaps if we could cross them with the lightning bug we might be able to get them to work later on in the night. (Laughter). They do come in very late in the evening. I can not tell anything about the kind of honey that it produces because it comes in mixed with the aster. There is an aster giving us an abundance of honey at that time.

The President: The white aster?

Mr. Klinger: I think it is purple. The botanical name is aster erecoides. It comes in mixed with that.

Mr. Holterman: This aster question is a somewhat interesting one, and I think we should try to solve it if possible. I am thoroughly satisfied that the only explanation that I can give is that the color of the honey that comes from the different varieties of asters varies possibly in different seasons. I sometimes have a pretty heavy flow. High land golden rod is what we call the one that does not yield. Now, to my surprise a gentleman gets up here and says up in the mountain he gets it. When we shake the combs at that time the thin honey which shakes out is a beautiful light ochre color from the golden rod which I get. I think the color of the honey must vary with the variety of golden rod.

The President: Have you any Spanish Needle there?

Mr. Holterman: No.

I confess I have come to this meeting to quite an extent in the hope that this matter of two queens or more in a hive will be thoroughly threshed out, and I want to hear the experience of the members on that subject.

Mr. Hershisher: It is my opinion that those who think that golden rod honey is dark don't know golden rod honey. I think they have got a little buckwheat mixed with it. At some Country fairs where I have been I have seen a nice jar of buckwheat honey placed on exhibition with a beautiful bloom of golden rod on it.

The President: It is merely a blend.

Mr. Holterman: I thought the same as Mr. Hershisher yesterday, but after hearing the evidence of other

men I have changed my mind about that. I think they are both right.

Mr. Moe: Have some of these gentlemen been tested for color blindness? (Laughter.)

Mr. Rea: In our locality I am quite positive we get almost every fall quite a heavy ffow of golden rod honey. I spend hours out in the field observing these things. I know the bees work very heavily upon it, and at that time the buckwheat flow is just about over, or possibly all over before it commences blooming; and we found a very heavy flow especially this fall of very clear, white honey, it was almost like water. I went out in the field and could find no aster or any other flower of sufficient abundance to create a place of that kind and the bees were just swarming on the golden rod, and they worked on it until almost dark.

Mr. Miller: I am from the same district as Mr. Rea. We get about three flows in four years in our section. Our honey is nearly water white from the golden rod. We observed these things carefully and our honey comes from the high kind of golden rod. We have a low kind that blooms early, but the bees never visit it, to my knowledge. But when the high kind comes on we get lots of golden rod honey as a general thing. I am quite sure the golden rod honey is produced from the high kind, and I am quite sure that the honey we get there is nearly as white as clover. We have a purple aster and we never got any honey that we are positive to know how it looks, because we get so little from it, and we can't depend much on it at all.

Mr. Hershisher: How do you regard the quality?

Mr. Miller: We regard it as very fine honey. Unless it is handled and sold before the winter comes on it begins to weaken, unless we are very careful. It crystallizes very quickly—in fact, in a few days.

Prof. Surface: As a practical determination of this subject, and of the discussion of the yield from flowers according to the species, I would like to say I believe it would be a good plan if we would send specimens of the plants to some botanist and let him name them. I believe this Association should have a botanist appointed who would be willing to name plants for us and give the specific name. I believe it is evident from the remarks here that one species of the same genius may be a honey producing plant and another a non-honey yielder. I am well convinced in this region the golden rod I have seen has not produced in the past few years. The southern golden rod in my opinion is not a honey producer. If we had the plants and the positive assurance that samples of the honey could be sent with them we could make an interesting exhibit for our next annual meeting.

I would move that we take steps toward making a collection in preparation for that. I believe Dr. Phillips should take hold of that, or, if not, I would be able to co-operate from my own office, as I have in my own office Mr. Hertzhog. If Dr. Phillips could see his way clear to do this I believe that should be the headquarters of all such movements.

Mr. Moe: I would second the motion that the president, with Prof. Surface, be given the privilege to appoint or select this botanist.

The President: The motion is with regard to the matter of selecting varieties of golden rod and other plants, too, I suppose, with a view towards making an effort in the direction of determining the different varieties that yield honey and those that do not.

Mr. York: I believe this is a wise thing to do. It seems to me it ought to be referred to the Board of Directors, as there seems to be some expense connected with it. This is a very interesting matter to me, because, as the publisher of one of the bee papers, I received a great many plants in my office for naming. A man sends in two or three plants and numbers them, and I send them to a botanist and he replies that No. 1 is white clover, No. 2 aster, No. 3 golden rod. When that is published no other reader knows anything about it. I think it is waste space to name plants in bee papers.

I would suggest further that this botanist or someone make drawings and have them printed in the Annual Report and then if any one of the members has something like that in his own locality he will know what it is.

The President: A photograph would answer.

Mr. Klinger: Is there any one who knows about how many honey producing plants there are?

The President: There are upwards of eighty of golden rod alone.

Mr. Klinger: If all the honey producing plants were classified and

drawings of those made it would make a book of itself aside from the report.

The President: I think if we leave Prof. Surface's motion as it is, that we take steps to learn more especially as to the honey producing blossoms, we then can in another motion or later on find a method whereby we can do it most economically; we can then find a botanist and work out the situation in such a way that it will be thoroughly practical and not very expensive. Otherwise it would cost quite a little, as Mr. York has already stated. If you are willing to withdraw the amendment and put the original question I think we can reach a conclusion better and cheaper.

(The amendment was withdrawn.)

Mr. Hershisher: The motion now, as I understand it, is that we take steps. It seems to me that is extremely indefinite. I think the proper motion would be that a committee be appointed to take such steps, and that they devise something or other to bring before the Convention a little later on.

The President put the motion, which, on a vote having been taken, was declared carried.

The President: I think Prof. Surface should take that as an individual, and be Chairman of a Committee which he might choose.

Prof. Surface: I am willing to help. I would like to name as that Committee the officers of the National. I believe this ought to be in the hands of the National Bee-Keepers' Association; and if we could have an official botanist and have the members send their plants to him he would name them without cost to them. It is remarkable the number of farmers that want plants named. And, Mr. President, as the old lady said when she took an emetic, "It is remarkable how one thing brings up another." (Laughter). I want to make the offer now that if any members of this Association have insects that they care to have named I shall be glad to have them sent to me, as my assistant is making a special study of the insect family outside of the honey bee, and we would be glad to co-operate in that way.

Mr. Hershisher moved, seconded by Mr. Holterman, that Prof. Surface together with the officers of the National, be such Committee.

The President put the motion, which, on a vote having been taken, was declared carried.

Mr. York: Does that include the Executive Committee or the Board of Directors?

Mr. Hershisher: The Constitution of the Association defines the officers.

The President: That would include, as I understand it, the President, Secretary, General Manager, and the Board of Directors.

Mr. York: If that is so you will have too large a body. It might be referred to the Board of Directors because they would have to deal with it afterwards. Let it be the President, Vice-President, Secretary and General Manager.

Mr. Hershisher: I will include that as part of my motion—the Executive Committee.

Mr Selser: The color and flavor of honey from the same plant in different locations is a matter of vital importance to me. I seem to find that the soil in which the plant grows, the climatic conditions and the rapidity of the flow have largely to do with the flavor and color of honey. I should be very much obliged if any of these men who get honey from golden rod of certain species would send me samples. I would be willing to pay them liberally if they did so; and I might give them some valuable information on that line.

The President: That is a very liberal offer, and we want to be sure before we send a sample to attach the name of the honey plant that the bees are working on. There must be no guess work.

Rev. Mr. Cleaver: I think we should be sure that the bees have actually worked on those plants. The location of my apiary in a new region entirely to me has brought out some things I never dreamed of. When I went into that country my first question was, "Do you get any buckwheat honey here?" And the answer I got was, "Plenty of it." I said, "What color it it?" And the answer was "Pure white." I think as many as twenty different farmers told me that their buckwheat honey was pure white. Now, I have been there two years and I have had no honey but pure white honey in the buckwheat season, but the honey of course was not buckwheat honey. There are farmers who sell their pure white honey for buckwheat honey. If they would send samples to these persons who make

these offers they would say they were samples of buckwheat honey. The fact was, the bees were not working at all on buckwheat, and there were only a few acres of buckwheat and there were hundreds and hundreds of acres of blue aster with a flower no larger than your thumb nail, so that the fields were perfectly covered with it, and the bees tumbled over each other working on that flower at the time when the farmers thought they were gathering buckwheat honey.

Mr. Colyer: In regard to golden rod, I have extracted golden rod in Minnesota; and in Pennsylvania our golden rod is yellow and the sealing is yellow—golden yellow; honey in Minnesota where I extracted there, 75 miles north of St. Paul, would granulate almost as soon as you had it extracted.

The President: You are sure it was golden rod?

Mr. Colyer: Yes. The honey is straw color. That is the kind we have where I live up here now; and the aster we have there is white—it is water white. This golden rod honey is as thick as any clover honey and as fine a tasting honey as you would wish to use.

Mr. Moe: Before any of our discussions will be considered of any value we must determine what has been called the personal equation. If we were in the railway business we would have our eye sight tested. I have got to the point that I dare not say from what I see that a bee is Italian or black or any other color. I have got to the point that I don't know some of these things. We need to determine or leave it to people who are competent, but we are certainly on a line of thought that is interesting and instructive and of educational value.

Mr. Rea: Can Brother Selser tell from a chemical analysis of the honey what flower it comes from?

Mr. Selser: No.

The President: I think Mr. Selser will say the essential oils will bar that.

Mr. Selser: We are guided by circumstances. I have rows of bottles in my laboratory from a light yellow grass color to a bronze color, but competent men say that honey was from exactly the same thing. So we have got to take all those conditions into consideration. I keep an actual record of the analyses of all of them. but for me to say I could tell from one analysis what it was from, I would have to say no.

Mr. Holterman: Don't you think the rapidity of the honey flow and the gathering has really more to do with the analysis than the source from which it comes?

Mr. Selser: I think it has.

On motion of Mr. Moe, duly seconded, the Convention adjourned to meet at 1:30 p. m.

AFTERNOON SESSION.

1.30 p. m. resumed.

The President: The paper by Mr. Alexander having been read, it has been suggested we take up the subject of plurality of queens in a hive. The subject is now open for discussion. I know Mr. Holterman likes to have a good many queens around.

Mr. Selser: I wish our President would state Mr. Alexander's plan in keeping a couple of queens in a hive.

The President: I must confess that while I heard the paper I didn't get enough of it, more than that it was the slow introduction, getting the bees well filled with honey and releasing them, as I understand it, so that the bees would scarcely know it; they would begin their labors without the bees knowing there were additional queens. If Mr. Root was here he could give it exactly, as I got it in "Gleanings."

Mr. Hutchinson: It is necessary, is it vital to the principle we wish to discuss to tell how those queens are introduced? I could go on and give you his method, but it seems to me the point we wish to discuss now is the advantages or disadvantages of having more than one queen in the hive. We can read the details in "Gleanings" of how he introduces them.

Mr. Selser: Let us have the statement of one who did this. We would like to know what points of success he gives for it. I am in ignorance of that.

The President: As I understand from the reading of the letter, the points of advantage are that in season a large number of young bees are reared. whereas if one queen was in the hive there would be a smaller number. He is able to meet the honey flow with a larger number of bees in the spring; by virtue of the plurality of queens he is ready to commence the season with more bees.

A GOVERNMENT APIARY AT WASHINGTON, D. C.
Through Kindness of Geo. W. York. (American Bee Journal.)

Mr. Selser: Do I understand there are two things, one being that it is good for wintering over a number of queens, and the other that you will get more brood at the right time?

The president: Yes.

Mr. Selser: Doesn't it follow that one queen is not equal to the emergency? I think on general principles that is not correct.

Mr. Hershisher: I suggest if there are any members of the Association here who have tried the plan and know anything about it that we hear from them; let us not have theories.

Mr. Catherman: I understand Mr. Miller has been successful in having two queens in one hive.

Mr. Miller: I am like the little boy, I like to be seen only and not heard very much. I came here to learn and I am determined to learn if there is anything to be learned. Before this Alexander method came out in the papers I was trying to learn this. I formed the idea that there could be two queens in a hive. I conceived the idea that possibly we might put in yearling queens and still work them just as well. I will give you my results. This spring, early, I went to a fairly good colony and they had a yearling queen. I took my scissors and clipped the queen's right wing. I knew then I had my queen marked so that I would know her. She was a very prolific queen. I used a ten frame hive. During my queen breeding a little later on I found I had a few inferior queens in color but good in laying quality and I didn't care to send them out to my customers. I took a queen excluding zinc and placed it in one side of the hive, with two or three frames to one side, and forced the laying queen to the other side of the hive with her brood. I proceeded then to introduce my queens at one side, and in five days I went back to find the queen and I found her in there laying. I clipped her left wing and I forced her over to the other side of the hive with the other laying queen. I placed my queen excluding zinc back where it was and proceeded to introduce another queen, of which I clipped both wings, and she was introduced all right and started laying just as the others. I stopped at that because my hive was only a ten frame hive. I left three frames with her on one side and the other six with the two queens on the other side. The queen excluding zinc took the place of one frame. During white clover honey flow those three queens continued their work and the brood was from edge of frame to edge. They kept it well filled. I went back between white clover and buckwheat flow, during the honey dearth, and I found the three queens as peaceful as three drones. I found two queens on the one comb laying. One queen was a year old clipped on the right wing; one was a spring queen clipped on the left wing. Those queens remained there peacfully all summer and they kept the colony well supplied with brood. This colony gave me more honey than two other colonies, and during the dearth of buckwheat and golden rod it continued just the same. They were peaceful until after everything was closed down.

I will show you where I made my mistake. I was dissatisfied with two of those queens because they were inferior queens. I went to my colony and found them all right. I destroyed my two inferior queens and went back to my queen breeding department and found two better queens, I thought, and I went to re-introduce, and I didn't get one of them in. That was after the entire crop was over and all the brood had emerged. I expect to follow that thing further on next year.

I have two colonies in my yard today with two fine queens in the same colony, and they are working fine; but after I took out those inferior queens and decided to put in better ones I found that didn't succeed; the bees destroyed the queens. The queens didn't do any mischief at all. I went to the other colonies and I drew one comb and I slipped down between a division board, and I have those queens in there in fine condition. But, that does not answer the question as to whether they will winter together. Las Saturday I went to my queen rearing yard and I expected to throw a lot of them together. In one of my queen rearing nuclei, it was three frames, my record showed me as having a fine queen in there, and I intended to throw her into a colony somewhere to winter over; and I found in that same nuclei a young laying queen, and I found a virgin queen there, peacefully getting along together without any brood. How this came about I can't explain because my yard

is fourteen miles from home and I don't get to it very often.

The President: I would like to ask if the three queens produced as much brood in one hive as they would if they were in separate hives.

Mr. Miller: I believe they produced more. This was an off year with us. This year they didn't produce two-thirds. Usually they produce a full brood. We got a short dearth between raspberry and sumach and we got a clover flow, so that the thing was just going along by a jerk at a time. This colony gave more brood than one where there was only one queen in it.

The President: If the individual queens had been separate would the sum total of the brood have been more than where they were collective?

Mr. Miller: Couldn't have been. It was a ten frame hive with one excluding zinc.

The President: The question is whether the individual queens could have filled more if they had had separate frames than the three queens together?

Mr. Miller: Yes.

Mr. Pratt: I have succeeded in introducing several queens in a colony by shaking the bees into a swarm box on to combs containing no brood, taking these bees from a queenless colony and keeping them confined in the swarm box two hours. When I go to make nuclei I take the queens directly from these boxes and run them in one after another, let them stay one night, in the morning release them, and the queens go on laying.

The President: Will they continue to lay without interruption from one or the other?

Mr. Pratt: They did with me for several weeks, but there were not enough bees for me to tell anything about the brood. It was during the honey season.

Mr. Root: Mr. President, not being in at the beginning of the discussion, I don't know exactly what the drift of it is, but I have a fair idea. The first I saw on a large scale was at Mr. Alexander's yards, where I saw some four or five hundred, each with two queens; they were two story hives with perforated zinc honey board between, a queen on each side. This was worked very nicely, and I raised the question with him, "Why do you do that?" He said: "To get more brood." I said, "Isn't it possible a good queen could lay eggs and supply you with the eggs faster than the bees could take care of them?" He didn't think so. It was his opinion he gained by having two queens, because it was easier to have two medium queens than one extra queen that could lay the same amount of eggs.

At our own apiary we have for a number of years reared two queens in a perforated hive, that would be with queen cells on both sides. The young virgins would each have separate entrances, but the same bees would have access on both sides to queens. We did it early in the season before the bees were working on the blossoms. It seems to me that one important point about this thing is, as Mr. Alexander has said, it is easier to raise two medium queens to do the same work than to raise a special queen to do a special work of that kind.

We have also been conducting experiments by running several queens together. Mr. Pratt has said you can run bees together without comb or brood and put them in a box. We also find we are able to do this. Take several nuclei and unite them with other queens, putting them all into one hive. If the combs are put next to each other for a number of days they will come along very nicely, but as soon as the honey flow stops or conditions become unfavorable they immediately seem to reduce the number. We have tried this experiment a number of times, but after the honey flow there would only be one queen. With a view of determining whether we could run several queens together, we did it again in the manner I have explained, and just before I came here I looked in the hive and there was just one queen.

While we can do certain things in bee culture, that is, while we can introduce one or more queens, I doubt whether it can be made a permanent sucess. After the honey flow is over or the conditions become unfavorable they will reduce down to one queen. But I think they will continue longer with the perforated zinc. I am not quite sure even with perforated zinc whether we can continue this much after the honey flow.

Mr. Pratt: I never had any trouble in continuing queens in a hive with the perforated zinc between them.

Mr. Holterman: I always feel very sensitive in a measure about our api-

cultural knowledge in this country, and I do think we, as bee-keepers generally, those who read more extensively, would do well if they would read more of the European Bee Literature. There are many things which come up which are of very great interest, and sometimes they come up in a way perhaps that they are not connected with something that is very practical at that time, and that same thought brought into our own continent is turned possibly into practical use.

Now, I see it stated that this is a new thing that has been brought out, that is, a plurality of queens in the hive. It was in 1881 that I first spent a season with a bee-keeper to learn bee-keeping; that was Mr. D. A. Jones of Beeton, who had visited Europe and brought ideas with him. I think he was the first one to introduce perforated metal on this continent. Anyway, I very distinctly remember experiments carried on at that time with a plurality of queens in one hive. The information he brought from England was that experiments were conducted with perforated metal between the queens in the four compartments separated by this perforated metal. The queens were safely introduced in many cases, but there was that same uncertainty that we never knew when some of those queens would disappear. I felt satisfied then and do now that the bees have more to do with doing away with the extra queens than the queens themselves. Now, when it comes to the practical advantage to be derived from that, I am theorizing quite a bit, and yet it is not all theory. I am satisfied that the average bee-keeper does not give the queen credit for the powers she possesses of producing eggs under favorable conditions; and that the fault lies with our management, and our hive and so on, rather than with the queen in many cases when more brood is not produced.

Mr. Alexander, in his short but excellent paper, refers to another point which has not been touched upon, and which is very important. It is very dangerous to say that a person is the father or the first one to bring out certain ideas, but I remember some time ago that the idea I brought out at the time was the danger of allowing brood chambers to be clogged with honey so that there was no room for the production of young bees. If we will be careful and see that the queen has plenty of easily available room so that eggs can be deposited there, and that there is loose food, honey and pollen there for it to feed the larvae with—because I know there are many bees that do not readily uncap honey to feed to the larvae, and the larvae will be only partially fed; and there won't be the same number of bees fed with the honey when it is capped as there will be when there is honey loose in the hive—if we will see that the brood chamber is not clogged, and that there is plenty of honey with which they can feed the larvae, and pollen in the hive, I think that will be of far greater use than the plurality of queens. It is really astonishing if you give them room how much more room the queen can occupy in the way of brood than we have given her credit for in the past. I am not going to condemn the matter of plurality of queens. Mr. Lockhart, who, I think, is a pretty good bee-keeper, is a strong advocate of it, and a strong advocate of having in the spring of the year more queens in the hive than one and wintering more than one, and he does it successfully; and when Mr. Alexander and Mr. Lockhart have done a thing successfully we want to be pretty cautious about condemning it. There may be more in it than what I am prepared to say at the present time.

The President: Will it pay to open up the hives and uncap the combs?

Mr. Holterman: At certain seasons, yes. That is one objection I have to pure Italian bees. I don't think any of us have any reason to falsely advocate certain varieties of bees that are so readily changeable, and that there are not vested rights in connection with that there are in breeds of cattle and so on; but the objection I find to the pure Italian bees is the tendency to pack honey about the brood chamber, and as the season advances, curtail the brood room; and if we have a fall flow we haven't got the bees we should otherwise have. That is why I like to have some carniolan blood in my varieties of bees; and with the number of bees I keep it is not an easy matter for me to see that the brood chamber is not clogged; it is much easier for me to take a variety of bee that will itself see to that.

The President: You notice a difference in the seasons with reference to the clogging too.

Mr. Holterman: That is right.

Mr. Miller: Are not those brood chambers more likely to be clogged with small swarms where the colony is down?

The President: Quite so.

Mr. Miller: That is my experience; but if I can get a nice large swarm of bees before the honey flow comes on I am sure to get the quantity of bees.

Mr. Holterman: I find if I want to get the best brood chamber with a good stock of bees I must put on two or three upper stories. With one upper story they will crowd the brood chamber much more than with two or three. Take a twelve frame Langstroth hive and you may have eight or nine of them with no honey, whereas if you are only using one you will find much more honey between the top bar and the brood.

Mr. Hershisher: Wouldn't that system work better with section hives?

Mr. Holterman: I don't know.

Mr. Miller: Might not the queens be to blame for this small swarm in the season or can we place it to the wintering season?

The President: The wintering season is one thing. There are a great many different things that go to account for it. There are a great many conditions under which a colony of bees has to work, and if the colony is a little small after wintering they are a decided hindrance in the way of such colonies.

Mr. Moe: There is another feature in connection with this system that has not been touched on. I understand this dual queen system prevents any tendency to swarm in the hive?

The President: That overcomes some of the difficulties.

Mr. Moe: Will they swarm at all?

The President: The opening between the lower or brood apartment and the upper is so wide that the heat passes above, and they enter the supers more readily. Consequently under ordinary circumstances there will be less honey below than under other conditions.

Mr. Holterman: Can you successfully raise a queen in the super, as has been advocated, and when that young queen hatches, not have swarming?

Now, it is a nice system, if it can be followed out, of rearing a young queen in the super and have that queen go down and destroy the old one. But during the honey flow and during the swarming season is there or is there not a great danger of having the colony swarm when that young queen hatches?

The President: It is well demonstrated that more than one queen in a hive during a yield of honey induces the tendency to swarm. How many have had any experience along that line?

Mr. Hershisher: I think it is one of Mr. Alexander's claims that the dual queen system or several queens in a hive, to a certain extent, does away with the desire to swarm.

The President: The question, as I understand it, was whether a young queen reared above would induce swarming below. It is a fine point.

Mr. Klees: The point is, after Mr. Alexander has two queens introduced into his hive will it prevent swarming or not?

Mr. Pressler: Yes, a positive cure. I can prove it easily if you come up to my hive.

Mr. President, I did not purpose coming before this convention at this particular time or at this session and taking any part in any of the discussions from the fact that I had been disabled for active duty the great part of the past season, on account of an infliction; and I have in the past, as the Bee Journal editors will know, avoided saying anything in any of the bee papers, and when writing a personal letter I always instructed the editor not to publish anything over my name. I had not for many years been so excited or provoked so much as I was by the article of Mr. Alexander coming out about the plurality of queens in one hive, more than a year ago. I am no Alexander and I don't purpose going into detail as to the system or how to introduce them, but I know it can be done. It cannot be done under normal conditions, but the bee-keeper who knows how to throw his colony out of the normal condition into a panic-stricken condition can do almost anything, even beyond his comprehension. That is the way to introduce queens. The Alexander system, as it has been recently described in one of the Bee Journals, is the single system I employ, and, as members in the house who have seen my system and my appliances in the past, would be willing to testify, I have

had this same introducing box for more than three years in a crude form. But, the question to be answered is, does it prevent swarming? I will say it does positively and entirely, on the theory that swarming is the result of the bees having their honey sacks continually filled with honey and secreting this kile food and having no place to deposit it, and an upper story, only one story on, of comb honey, and a small hive which induces swarming. Am I correct in that?

The President: Presume you have a strong colony of bees on empty combs and one comb of brood intrduced, how about the production of kile then?

Mr. Pressler: Do they swarm under those conditions?

The President: No. Take a ten frame hive, will they swarm then?

Mr. Pressler: I don't think they will. I say it is not alone the introduction of kile food, but all these conditions: Having too much honey in their sacks and no place to deposit it, a small hive, ventilation, and all those things enter into the causes of swarming. The question is to avoid that. I never tried to introduce a plurality of queens under the comb honey system, but under the extracting system. I presume you are all aware of the fact that Mr. Alexander runs for extracting. It may not work while you are running for comb honey, but it does for extracting and prevents swarming. The theory is this: You give them plenty of ventilation and plenty of hive sell room to deposit their honey. The consequence is that this overproduction of kile food does not take place. You have no occasion to uncap any sealed honey in the brood chamber; you have your plurality of queens there to do that.

The President: Don't you think the production of kile food is optional with the bees and according to the requirements of the brood nest?

Mr. Pressler: Yes.

The President: So they will not be overcharged with that at any time; it is simply the honey that will overload their sacks?

Mr. Pressler: Yes. It is my opinion that when you have a heavy flow of honey that the bees are like human beings, they are uncomfortable on account of having too much honey in their honey sacks.

Mr. Hershisher: Do you allow the bees to cap the honey in your extracting chamber?

Mr. Pressler: I have been so busy that I have raised the first super up and put another twelve frames on top, and raised the first twelve frames up, when they were partly filled, and put another body of empty combs under and let them cap it afterwards.

The only sad feature about plurality of queens with me is that it has been argued that they cannot be wintered over. I believe it pays if you can only keep them in during the honey flow or prior to that. I believe it pays better than to follow Mr. Holterman's plan.

The President: How many colonies have you tried that experiment of plurality of queens on at the same time?

Mr. Pressler: Twenty at one time in one yard. I had no later than Saturday two queens, without the perforating zinc, in a hive, but I noticed there were two clusters in the hive, and this is the first time I have succeeded. The reason I did not experiment along that line this year so much as I did last year is because I became afflicted with my eyes, and during April, May, June and July I could not tell the difference between a queen and a drone. I had to depend on outside help. It is only three weeks since I have been able to go without dark glasses. It was my purpose to have no less than a dozen or more colonies go into winter quarters with from two to four queens, but on account of my eyes I have failed to rear the queens.

Mr. Moe: To come back to the original question. I have a lot of theories, but I find they are no good frequently. I want to read what Mr. Alexander says because it comes back to your question: "We have never had a colony with two or three or more laying queens prepared to swarm." I have not been able to carry on an experiment in that line that was worth anything. I had quite a lengthy talk with a neighbor bee-keeper, and of course he said he had and was very much interested in it. He claimed he had tried it very successfully and was secure from the swarming fever. I am not sure, however, how far that bee-keeper's experiment is to be a reliable guide for the most of us. I happened to talk with another bee-keeper who seemed to think that it was not.

Mr. Hershisher: I am not much of an advocate of talking theories; I am more of an advocate of listening to facts; but I think I have discovered

the theory as to why there is not much tendency to swarm when there is a plurality of queens in the hive. As I understand it, Mr. Alexander is an advocate of extracting the honey before it is capped to save the trouble of capping; and as I learn from Mr. Pressler, he gives plenty of room in the extracting hives; and these two persons state that the plurality of queens does away with the tendency to swarm. It is my theory if they allowed the bees to cap the honey there would be just as much tendency to swarm as there was before. I think the way to overcome that is to allow the bees to cap the honey and get a good quality of honey on the market. (Applause.)

Mr. Moe: I want to call attention to another fact that was overlooked by me for a long time. Additional room will not cure swarming. That is the way I understand it. It will work if you give additional room with plenty of comb, but that wants to be added, because otherwise the thing doesn't hold.

Mr. Holterman: You want to give the room in time.

Mr. Hershisher: I would like to know if others believe my theory is right.

Mr. Hutchinson: Mr. Alexander must have had other colonies besides those that had two queens, and he says they didn't swarm with those that had two queens. The inference would be those which had only one queen did swarm.

Mr. Holterman: Does Mr. Hutchinson believe that it is much of a trick for a man to run for extracting honey and take that honey out before it is capped and then not have the bees swarm? I think anyone can do that. I think Mr. Hershisher's point is very well taken.

The President: How about that large apiary of Mr. Alexander? That would also prevent the tendency to swarm. He has 700 colonies.

Mr. Hutchinson: But that would have the same bearing on one class of colonies as on the other.

Mr. Holterman: The question is as to whether that can be done successfully one season with another in an ordinary locality—that is, rear a young queen in the super and not have the bees swarm?

The President: I suggest we try it and see.

Mr. Hutchinson: I can tell you a little bit about that. In one yard of bees we had about 150 colonies. We let the queen have full swing with two or three or four upper stories, not putting the excluders in. We intended putting them in sooner, but other things prevented; and when we finally put the queen excluder underneath, all but just between the first and second story, almost every colony reared queens in those upper stories above that queen excluder, and in 150 colonies there were about seven that swarmed. There were no openings in those upper stories and those young queens were never fertilized.

Mr. Holterman: Was that done near the close of the honey flow?

Mr. Hutchinson: It was, perhaps, three weeks before the close.

Mr. Hershisher: Wasn't it after the swarming was pretty well over? It would be my theory that that would be the thing to encourage swarming.

Mr. Hutchinson: If I had been to the trouble of going through the upper stories and destroying those queen cells for fear they did swarm, but we didn't get one with it; I couldn't see there was any difference.

Mr. Hershisher: Don't you think the colonies were past the swarming season?

Mr. Hutchinson: No, I don't think that.

Mr. Holterman: Isn't it Mr. Chapman who advocates putting up the brood in the super, rearing the queens there and then shaking the young queens down after a certain number of days?

Mr. Hutchinson: He kills his old queens.

Mr. Holterman: He told me he found that in nine cases out of ten by simply shaking the young queen down the young queen would destroy the old. It wasn't worth while hunting up the old queen. I would very much like to feel and be justified in feeling that I could rear the young queen in the super. I have ventilating holes in the back of my extracting super out of which the queen could come. If they would swarm there a young queen could emerge out of the super or the old one could come out below, but I don't think it would affect it one particle. If the swarming impulse was set up the old queen would probably lead out the swarm. and it would be altogether an after consideration

whether that young queen would be able to get down below or be fertilized or not. Somehow or other I have a very nervous feeling in a good many cases that there would be the danger of swarming. If there are those who have tried it, or those who have reason to believe otherwise, I would, for my edification, like to hear it.

Mr. Green: There is a gentleman in the room that has spent the summer in the employ of Mr. Chapman.

Mr. Hacker: I have spent a summer with Mr. Chapman. He has not practiced that this summer, as Mr. Holterman describes, but he has practiced this summer a little differently. He has taken the old queen and four frames of brood away and left the unsealed brood and let it take care of itself. The bees, of course, would raise a queen there. But in some instances the young queen has been reared up in the super, and he shook them down as Mr. Holterman has described.

Mr. Hutchinson: There is one point there. Mr. Holterman, about the swarming impulse. When you give the queen plenty of room in all those three or four stories there is not very much chance of the swarming fever to develop.

Mr. Holterman: Are you still in favor of letting a queen run through three or four?

Mr. Hutchinson: Up to a certain point. The point I wish to speak of is that plenty of room has the tendency to keep down the swarming fever. If we put in the queen excluding board they build cells in those upper stories, and do not have the swarming impulse because those cells are shut away from the queen. If they were built under the swarming impulse I should think perhaps they might swarm.

Mr. Holterman: Mr. Hutchinson has brought out another point which I think is not sufficiently brought forward among bee-keepers, and that is, no matter what the means are, if you shut off one portion—for instance, you take a twelve frame or eight frame hive and go to work and have that crowded with brood, and take two combs out of the center, and the flow is pretty heavy, instead of putting brood in there they are very apt to fill those two combs with honey. That creates a condition, where the queen is not in, for the bees to be queenless and they will rear a queen there. It is perfectly reasonable to say that is not the swarming impulse and they will not swarm under those conditions, and yet I am perfectly satisfied that I have had bees swarm as a result of that; and so much has that been the case, that in heavy flows I have had to take brood from the brood chamber and give them empty combs, because they would fill part and rear queens in the other part.

Mr. Hershisher: Put plenty combs on the outside.

Mr. Holterman: If I did that they would not be filled, either. I have not been as successful as I would like to be in the matter of taking out brood, where there is a good flow, and putting in other combs or foundation and getting them to fill that with brood.

Mr. Moe: Another feature ought to be added to that. Different races have different tendencies. My black mongrels, among others, as a rule, do not swarm until the first cell is capped over; but my Italians will do it any time they take a notion. It is "hip, hip, hurrah," and away they go, that is all there is to it. I would like to ask Mr. Hutchinson as to his bees, if the race makes any difference? I would also like to ask him if he does rear his young queens that way, if they won't keep on destroying the others till one is left? Then. I have kept those virgin queens for a few days, with the old, but beyond the fourth or fifth day you can't keep a virgin queen very successfully; the bees will do something or other.

Mr. Hutchinson: Those bees were all Italians and we extracted honey after those queen excluders had been in there about eighteen or nineteen days, drawing upon the theory that they were nest building those cells when they were first put in; and those young queens we found there must have been about three days old. How much longer they might have lived there I don't know.

Mr. Hershisher: I think I can help Mr. Holterman out a little on the question of having empty combs filled with honey. He has a twelve frame hive. There are very few queens that can keep twelve frames going in brood all the time. If he had a ten or nine frame hive he would have better success.

Mr. Holterman: Mr. Hershisher has on different occasions been very anxious to help me out. I have generally

found when he was anxious to help me out he was trying to help himself out. Where I have taken brood out of hives it was out of the very best colonies that were already so crowded with brood that they needed more room. Therefore, this help-out is a sort of back-hand slap at the twelve frame hive.

Mr. Hahman: One of the speakers here has somewhat stolen my thunder. I think the races of bees have something to do with the swarming impulse. I had five colonies this year on a plan somewhat similar to that which Mr. Hutchinson has stated. I put in a queen excluder a little late. Two of them were Italian and three Carniolans. They reared queens above. The three Carniolans swarmed and the two Italians didn't.

Mr. Holterman: That is perfectly correct, but nevertheless with over 300 colonies for the last two, perhaps three years, you can add eight per cent for swarms. I would expect the Carniolans would swarm when the Italians wouldn't.

Mr. Klees: In these colonies where you controlled the colonies to eight per cent where they run for extracted or comb honey?

Mr. Holterman: Extracted honey.

Mr. Miller: I do not have any Carniolans or Cyprians, but I have the dark Italians and in the fore part of the summer I raised a great many queens in the upper stories over the brood nests, and I never found a swarm to be caused in any way or form through the white clover season. The young queens are over the excluding zinc and they fly to the rear end of the hive.

Mr. Holterman: When I speak of these stocks I mean a stock of bees that is strong enough for the twelve frame hive with sometimes four extracting supers upon it, and it is from top to bottom.

Mr. Miller: That is exactly what I have.

Mr. Holterman: Have you the continuous flow or breaks in that?

Mr. Miller: This year was an exception, but generally we have but one break in the summer, between clover and buckwheat.

Mr. Holterman: We have almost a continuous flow and conditions where I think it is difficult to keep them from swarming.

Mr. Rea: Would hatching queens in nursery cases in a brood next in a normal colony have any bearing on this question? In my experience in that case they never cause swarming in the colony.

Mr. Miller: During the cold weather we worked our virgin queens that way in nursery cases; and I have carried them in the strongest colonies in the yard during that clover flow we had this season and I never found the least inclination towards swarming. We were running for extracted honey.

The President: Perhaps we had better continue the subject in the paper by the Rev. Mr. N. E. Cleaver of Emporium, Pennsylvania, whether it is practical and profitable for the average bee-keeper to rear queens for the market.

Rev. Mr. Cleaver then addressed the convention as follows:

Is it Practical and Profitable for the Average Bee-Keeper to Rear Queens for Market?

On October 9th, Mr. J. A. Green wrote me requesting that I prepare a paper for this convention on "Modern Methods of Queen Rearing." On October 19th Mr. N. E. France wrote requesting a paper on the "Profits of Rearing Queens for Market." The same day Mr. L. A. Aspinwall requested an article on "Whether it is Practical and Profitable for the Average Bee-Keeper to Rear Queens for Market." So I had requests from the President, from the General Manager and Treasurer, and from the Secretary of the National Bee-Keepers' Association that I contribute something from my experience toward the program of this convention. Who could decline an invitation so nearly unanimous? Even though he felt like a certain college professor at the Jenkintown Field Meeting who said, no doubt facetiously, that he considered himself abundantly qualified to discuss the subject assigned to him, in fact, he was abundantly capable of handling with satisfaction to himself and profit to others any subject along the line of bee-keeping, for he had been in the bee-keeping business now for one whole year. These eminent men who so unanimously and so graciously extended this invitation to me have known me to be in the queen rearing business for one whole year. From the professor's standpoint no doubt they have encouraged the preparation of this paper. But as proficiency de-

pends more upon application than length of time, the professor made good, and while I am but a workman from the quarries of bee-keeping experiment, I should like that my work for the temple of enthomological knowledge should be like my hive, blump, level and square. But I have been in business just a little longer than that. Forty years ago this summer in the month of August I made my first original experiments in the bee business. My father then had, as he claimed, the largest apiary in Pennsylvania. His bees sometimes sulked —"balked," as he called it, and hung in great clusters under the hives. He frequently expressed the wish that he knew some way to break up their indisposition. So I studied it out for him, as all beginners in the bee business should do; the old fellows have been so long wearing their grooves that they cannot get out of the ruts. I studied it out for him and proceeded to the experiment. With a long pole I climbed into a tree over one of the colonies that had clustered outside in a great bunch. With one straight jab I broke up the cluster and at the same time very effectually broke up their indisposition. What happened to me, I will never tell you. But when the doctor stopped coming a few days later, he advised me not to make any more experiments along that line; that, in fact, the bees were not indisposed; that although they were not secreting honey nectar they were secreting energy, and if they were not depositing honey in their wax cells which they had prepared, they were not at all reluctant to deposit energy in cells of flesh already prepared. Now the conclusion of the story is this: If any of you discover a method of breaking up sulking by which the bees will store honey in wax cells as rapidly as those bees stored energy in flesh cells, prepare a paper on the subject for the next national convention.

But from the day of that experiment to this I have been practically immune to bee stings, and that first experiment prepared me for all later investigation.

My first experiment in queen rearing that departed from all my father's methods, consisted in sawing off the heads of clothespins about an inch long, cutting queen cups from brood combs and fastening them on the ends of the clothespins, then with the pin picking out a little wax with adhering egg from a worker cell and sticking that in the center of the queen cup, then boring a hole through the top of the hive and pushing the clothespin with its queen cup and egg into this hole; having previously made the queenless colony by removing a hive and placing in its stead a hive with a little sealed brood to catch the flying bees from the removed colony. All that I know of modern methods of queen rearing is but a refinement of the principles thus experimented with. Now instead of the clothespins we use the Pratt wooden cell cups. And instead of taking the queen cups from the hive we have the Pratt cell forming machine. And yet generally I use the Doolittle method, making the queen cups in large quantities and fastening them to the wooden cups with a glass hot-wax dropper, the same dropper I use to fasten full sheets of foundation in sections, fastening them on four sides. Instead of using a pin to transfer the egg from the worker cell to the queen cup, I use a little punch that cuts out a small disc from the base of the worker cell with an egg in the center; inside of this punch is a sliding cylinder which pushes the disc from the punch and at the same time nicely fastens it in the queen cup. In warm weather the grafting of larvae is just as convenient, except that the queen cups must be moistened with royal jelly, diluted honey, or saliva commonly called spit. I have also tested having queens lay directly in the cells, but I prefer the transfer method. The "Swarm-box" method of having cups built into cells is not used when eggs are transferred, nor is it at all necessary when larvae are grafted. With a strong colony of bees there is never any trouble to get cells started, even in April, if we place a porter bee-escape honey board with the escape removed between two stories of the colony with brood above, being careful to have the queen in the lower story, and a piece of queen excluding zinc over the opening in the honey board, and a "division board feeder" filled with water, or very thin sugar syrup, in the upper story.

Instead of placing the wooden cell cups in holes bored through the top of the hive, they are placed in holes bored in the top of brood frames, or,

what is equivalent to that, in frames prepared for the purpose, having from fifteen to thirty queen cups in one frame. About the eighth day after the egg was laid, the queen cell is sealed and needs no attention, and should receive none until the day before it is to hatch out. If the cells are handled during this time, the queens are likely to be either killed or dwarfed, and most of the under sized queens, and loss in mating, may be accounted for in that way. Then comes the hard part of the queen rearing business. If the queens are allowed to emerge all together, of course they will kill each other. If they are placed in nursery cages, the virgin queens are exceedingly hard to introduce into mating colonies unless those colonies contain only a handful of bees, and such nuclei mating colonies must be constantly fed and the bees renewed, with these exceptions, I have found baby nuclei just as good for mating queens as large colonies.

With a large number of nursery cages, a very large number of baby nuclei containing two one-pound sections as brood frames, several twin-mating boxes containing brood area equal to one-half of a Langstroth frame, several two-frame Danzenbaker mating hives, and all my Danzenbaker hives arranged so as to be readily transformed into four mating compartments,—I like best of all the four compartment hives for mating purposes because of the ease with which they are prepared. The wood division boards are made to fit the hives perfectly, even out to the ends above the framed supports, and extending one-eighth inch above the brood frames, upright cleats are nailed on the ends to make the proper spacing just as on the regular hive follower. A Paroid cover is made to fit over each compartment between the division boards. The bee entrances into the compartments are all made different, so that the virgin queens can easily tell the right place. An eleven-sixteenth inch hole is bored through the top of a frame in each compartment, and an inch hole is made in the Paroid cover at the same place.

The day before the young queens are to emerge we prepare as many compartments as we have ripe cells. There will be an old queen in one compartment and three queenless compartments in each hive. One ripe queen cell is then placed in the eleven-sixteenth inch hole in the brood frame of each queenless compartment. No West cell protectors are necessary, as these cells will never be torn down. In about ten days the young queens will be laying and may be removed and other ripe cells inserted. You notice that these cells are inserted without removing the paroid covers, in the same way they are examined the second day to see whether they have hatched. During a honey flow I have frequently used queen excluding zinc instead of Paroid, and all of the compartment bees worked in harmony in the super. With baby nuclei boxes, the holes are bored through the top and between the frames, so that the ripe queen cells are inserted without opening the box. The two-frame mating hives are managed the same as a compartment in a large hive. This method I have found much more simple and much more certain than the nursery case system or the dual queen system. And while the dual system gains two or three days each time you mate a queen, the time is more than counterbalanced by the extra work and the percentage of loss in introducing. And since the queen season is so short, the gain in time only amounts to two or three queens in a season.

Is it practical then and profitable for the average bee-keeper to rear prices? Let me say in general that it is never practical in business to do that which is not profitable. Does it pay to rear queens to sell? Well, yes, if you are willing to accept the pleasure of an occupation as the pay for your labor in it. It reminds one of the prayer that is often heard in the churches, that the Lord will give the faithful pastor many souls for his hire. But it takes money to live on. And if the queen business is to be considered from the standpoint of dollars and cents, then I think that I can prove conclusively that it does not pay. I have kept accurate accounts. I have advertised by what is called "Key Advertising" and so know absolutely what results have come from certain investments. My advertisement in one paper has brought me far better results than any other, and so I will consider only the results from that source. My equipment was ample; one apiary of Golden Italian bees containing about seventy full colonies

and a large number of two-frame nuclei mating colonies, with an expert queen breeder in charge; and one apiary of Banat bees containing thirty-six colonies, five imported breeding queens and myself in charge of rearing queens. I have filled all retail orders received except five; they contained the directions "please send by return mail;" they came at a time when I was behind with the orders, and so the money was returned to the senders. I filled several large wholesale orders for Golden Italian queens at exacty what I paid my man for rearing the queens, so the question of profit or loss will not take such orders into consideration. I also leave out of account the cost of rearing the Golden Italian queens which were sent out at retail by taking the cost from the total received. And I have left as a result of the season of 1907 for Banat and Golden Italian queens sold through the advertisement referred to $146. I spent one-half day each week answering letters, mailing queens, grafting cells, etc., during the queen season. I answered 241 letters. My expenses were $36.68 for advertising; $9 for postage on letters and queens; $4 for cages; $31 for imported breeding queens. About two-thirds of this latter item, I think, should properly be credited to this year's account, leavink the queens' values stand not as breeding queens but as heads of colonies for another season. Making a total expense for the season of $72. And leaving as pay for the season's work and investment about $74. And now you will say, "Why, it did pay, after all. It paid 100 per cent." But wait a little. I have used eighteen Banat colonies and worked about six full days. On the other eighteen Banat colonies I have put about a day's work altogether, and have taken off $90 worth of honey. I have divided these eighteen colonies, making eighteen new colonies, which are worth in the market at least $5 each for bees alone. If they were Italian bees they would be worth $2 each without the hive, making $36. The average bee-keeper has Italian bees, and so we will count the profit from that standpoint. Ninety dollars for honey and $36 for increase make $126 profit from eighteen colonies by working them for honey. If I had not been in the queen business, and had worked the whole Banat yard for honey, I would have saved five days' work and earned $52 more. And I ask again, does it pay to raise queens at present prices? And the answer is very distinctly uttered when I say "It does not pay in dollars and cents."

And before I close let me set forth the claim that queens are worth very much more than the present prevailing prices. At present it is cheaper to buy queens in the spring than to winter colonies, in Pennsylvania. Take as an experiment, ten colonies in the fall averaging thirty pounds of honey each. That honey will sell in any store at 10c a pound as chunk honey in the very poorest season; this year it sells readily at 15 cents.

Give the bees from nine colonies to some queen breeder, he will be very grateful for them, and sell the 270 pounds of honey for $27. Next May when your one colony is very strong, nine pure bred Italian queens for $6.75, and give them to the new colonies. And when the August honey flow comes on you will have ten colonies that will gather you more honey than all you could have wintered over out of the ten, together with the swarms that they might have thrown out; and in addition to that you will have made $20.25 by buying your queens in the spring instead of trying to winter your colonies. Of course, I would not make my increase in just that way, but it serves for the illustration, and proves that queens are worth very much more than the present prevailing prices. One hundred colonies treated in the same way would increase a man's profits $202.50 a year. Where the main honey flow is earlier in the season, so large an increase in colonies could not be made.

The President called upon Mr. Satterthwait, Assistant State Zoologist of Pennsylvania, to read his paper on "Insect Enemies of the Honey Bees."

Mr. Satterthwait: Mr. President: Having been honored with a place on the program at this, the annual session of your noble association—the admiration of Europe,—I have chosen to speak of the enemies of the honey-bee. If by outlining to you the life-histories of these species as far as I have been able to find recorded, I shall draw from you some original observations on the less known species or additional controlling methods for any of them I shall feel well repaid.

My thanks are due to Prof. H. A. Surface (through whose kindly influence I was led into fellowship with you) for my place on your program and for the first use of several of the pieces of art prepared by Mr. W. R. Walton, and here shown, to be used in a pamphlet relative to Bees which is in contemplation. To Mr. Walton my thanks are due for kindly assistance and for the use of one plate prepared privately and used by him for the first time in conjunction with his address before the Entomological Department of the Harrisburg Natural History Association, one week ago.

The following publications have yielded me helpful information:

Guide to the Study of Insects. A. S. Packard. 1874.

Langstroth on the Honey-Bee. Rev. L. L. Langstroth. 1859.

A Catalog of the North American Diptera. Aldrich. 1905.

Bibliography of Economic Entomology. Henshaw. Papers I, II, and III. 1890.

Noxious Insects of N. Y., Ninth Report. Fitch. 1864.

Missouri Entomological Reports. Riley. 1869.

Insects Injurious to Vegetation. Harris. 1842.

American Bee Journal. Vol. IV, V, VI. 1868-71.

The following are the more important of the insect enemies of the honey bee.

1. Bee Moth—Galleria melonella.
2. The Wax-Moth—Achroea grisella Fabr.
3. Bee Killer, or Wolf-fly—Promachus fitchii. O-S.
4. Bee Louse—Braula caeca.
5. Oil Beetle—Meloe angusticollis (Packard) European.
6. Fly—Phora incrassata (?). Packard.
7. Meal Moth—Plodia interpunctella Hbn. (?) Sm. N. J.
8. Butte. Trichodes Apiarius (Packard European).

Other insect enemies are chiefly the predaceous wolf-flies, dragon-flies, wasps, hornets, ambush and assassin bugs, ants and sphinx moths (which latter rarely steal honey from the hive.)

The Bee-Moth (Galleria melonella, described also under the name Tinea cerana, Linn. and T. melonella, Reaum et al.), is mentioned by Aristotle, Virgil, Columella and other ancient authors as one of the most formidable enemies of the honey bee. An article in the Boston Patriot, spring of 1806, indicates that the moth had recently been observed in the vicinity of that city. Dr. J. P. Kirtland, Cleveland, O., reported to Rev. L. L. Langstroth that within two years after the appearance of the article, four-fifths of all the apiaries in the vicinity of Boston were abandoned. The same party reported that the moth was first observed at Mercer, Pa., in 1828, and by 1832 had overrun Ohio.

At the present time, probably every apiarian knows the work of the moth, and that it cannot be successfully controlled in the old-fashioned box hives. The life history may be described thus:

The moth from head to end of folded wing is five-eighths to three-fourths inch, the expanse is one and one-tenth to one and four-tenths inch. The females average much larger than the males. The palpi of the females form a prominent "beak." The palpi of the male are not so conspicuous. The adults fly normally after dusk and about May for the first brood, August for the second brood. When the moth is at rest, the legs are normally concealed. The wings closely overlap on the back, when folded, and are drawn down at the sides. The outer margin thus folded suggests the outline of the tail of a fowl.

When the moth is disturbed it moves with a jump and flit, making it hard to catch. The eggs are inserted by the telescoping ovipositor into any available crevice of the hive, the number sometimes exceeding 200.

These are spherical and about 1-90th of an inch in diameter. They hatch after some days. The larvae immediately crowls to the comb and begins spinning a tubular casing about itself, and feeds chiefly on wax, but cannot thrive on purified wax. This tube is made larger as the growth of the larvae requires. The excrement has the appearance of gunpowder and gives characteristic evidence of the presence of the moth larvae, when found with the silk tunnel or in bee-bread. The larvae, when full grown, is one inch long, tapering slightly from the 4th segment, each way. A sub-lateral fold, which is slightly lighter in color than the rest of the body, marks each side, above which

fold are the spiracles. The head and cervical shield are reported to be sting-proof, as is also the tunnel. This makes it possible for the larvae to feed safely in the presence of the bees. The bees, however, in a strong, prosperous hive, are able to keep bee-moths and their larvae so under control that injury does not appear. The hives which succumb are those where few bees are, or where bee disease is present, or where there is no queen.

Through the courtesy of Prof. Surface, I am here allowed to publish some data secured from accessions and breeding cages during the past three years in his office.

Larvae were received alive: IV. 24, (2132 b. State College, Pa.); V. 11, (5836); V. 23, (5996 f); V. 29, (6384); VII. 11, (6896 Camphill); VIII. 26, (1251) Gettysburg.)

Pupae were received VIII. 26, (1251) Gettysburg.)

Adults were received V. 26, (6365 e State College.)

Cages were established for numbers 5836 (V. 11), 6384 (V. 29) and 6896 (VII. 11). In cage No. 5836, one was spun up when received. This pupated V. 16. Another spun up V. 12, and pupated V. 17. Neither developed to the adult form.

In cage No. 6384, several larvae spun up, VI. 7, the last by VI. 14, and one spun up when received (V. 29), pupated VI. 7. Adults emerged. One on VI. 17, one VI. 19, three VI. 23, one VI. 24, and one VII. 17.

In cage No. 6896 were many larvae of varying sizes, and at least one pupa, (VII. II). Larvae were observed as late as VIII. 15. One adult emerged VII. 14, and one VII. 26, another VII. 27, another VIII. 10. On VIII. 12 one female and the first male were found. Adults appeared in increased numbers beginning VIII. 16; from this date to VIII. 30 inclusive, 190 moths emerged, of which approximately two-thirds were females, one-third males. From VIII. 31 to IX. 17th inclusive, eleven emerged, none emerging at later date. Thus we see that under the conditions under which bee-moths exist, stages overlay to a marked degree, and adults and larvae may be found together V. 26. (See No. 6365 and No. 6384); again, in a cage of few specimens, larvae were observed as larvae within three days of appearance of adults on VI. 17 (see No. 6384); in the large cages above named, larvae and adults overlapped from VII. 14 until VIII. 15, the latest date on which normal larvae were observed.

There is no doubt to be entertained that there are two generations annually; there may sometimes be three in this state. Mr. Langstroth, in breeding experiments with this wax-moth, recorded that the series of larvae which he found spun up late in the fall for the most part wintered in the larval stage, a few pupating before winter and wintering thus, with one emerging before winter set in, all having a summer heat by an artificial process. Mr. Langstroth noted the experience of Mr. Todd, who had actively feeding larvae to begin with, whose larvae continued to feed until mature, then pupated and emerged without other delay than might have been expected during summer weather. These results, with our own breeding records, would indicate that broods are not absolute, all stages to some extent wintering over.

The manner of feeding in this species may be contrasted with the manner of feeding in the wax-moth thus: The tunnel which the common wax-moth makes is conspicuous by its larger size and its proximity to the cell caps, making a slight streak beneath the caps. The tunnel of the lesser moth is much harder to recognize, being smaller and in close proximity to the foundation of the comb.

The bee-moth can best be controlled by keeping the hives strongly colonized, and by using the modern hives and frequently lifting out the combs and examining them.

THE BEE KILLER.

The bee killer (Promachus pitchii) was first reported from Nebraska, in July, 1864, as a pronounced enemy of the honey bee. It belongs to a family of strong, generally large predaceous flies, having an elongate body, with very long slender abdomen, excepting for a few robust forms closely resembling bumble bees. The vertex of the head is conspicuously hollowed out, giving the eyes greater prominence. The proboscis is fleshy lips of some of the biting flies. Dr. Fitch describes these flies as inhard, strong, pointed, and lacks the

human murderers, the savages of the insect world. They take their prey to some extent, perhaps generally, on the wing and even seize dragon-flies, bumble bees and tiger beetles. The pain of a common horse-fly's bite is generally understood to be maddening in its sharpness. The wolf-fly proboscis lacks all softness and when inserted into the victim, is held there by stiff bristles, and the fly sucks out,—not a little blood—the whole mass of soft internal organs! Now, this bee-killer is fond of other insects. It destroys rose-bugs and doubtless many other insects which are injurious. However, Dr. Riley watched a number of these bee-killers for a while and observed that although many other insects were present, they gave exclusive attention during this observation to the selection of honey bees. The sting of a bee seems not to affect them, except to make them tighten their grasp on their doomed victims. They seem generally to pierce the thin integument between the head and thorax, or vulgarly expressed, the bees "get it in the neck" at as high an observed rate as 141 bees in a day by one bee-killer. The members of this group of predaceous flies have the peculiar habit of choosing a perch and after each sally returning to the same perch, whether with or without game. When a perch is selected near a bee colony, it is expedient for the owner of the bees to secure a net and wait until the spoiler lights on his perch with prey. When this happens, net the fly and send it to some entomologist with a record of its conduct. They will put it up for a term of years. To try and catch a wolf-fly or bee-killer when he is watching for prey rather than feeding on his prey is nearly hopeless, as they are thus very alert and very swift. The bee-killer is in the adult stage in June and July. In self defense the bee-killer may inflict a painful bite upon his captor.

BEE LOUSE.

Packard.

A wingless, minute, blind insect, with large head, thorax transverse, ring shaped, half as long as head. Abdomen is round, five jointed and legs thick with long claws, enabling them to cling to hairs of bees. May be compared with fleas, its body being flattened vertically, while that of the flea is flattened horizontally. Transformations show it to be undoubtedly a degraded Muscid, with a true puparium. Those of the flea, with its wormlike, more highly organized larvae and the free obtected pupa show that, though wingless it occupies a much higher grade in the dipterous series.

It is found living parasitically on honey bees in Europe. Antennae are short, two-jointed and sunken in deep pits. It is from one-half to two-thirds line long. Larvae is headless, oval, 11-jointed, white. On the day it hatches it sheds its skin and changes to an oval puparium of a dark brown color. It is a body parasite, one or two occurring on the body of a bee, though sometimes they greatly multiply and are very troublesome to the bees.

Meloe Americanus belong to a family and seem to be our lone species in Pennsylvania. The adult is well shown in Mr. Walton's figure. The head is broad, thorax somewhat narrower. The abdomen is large, ovate, full, with short wing covers, overlapping, rounded at tips. The antennae are twisted and knotted in the male. The texture of the body is soft, the color beautiful deep blue.

The life history is varied from that of most insects, even from other Coleoptera, in having, instead of egg, larvae, pupa and adult egg, larvae (the feeding stage, which attains a length of .06 inch), the second larvae stage (grub-like, but head masked, "semi-pupa"), third larvae stage (also grub-like) pupa and adult. The true larvae is suggestive in shape of a louse, or, when highly magnified, strikingly resembles the nymph of a stone-fly. This creature hatches from the eggs which are laid in the ground, and get a foothold on a bee, when the first opportunity offers. These are body parasites of the bees, probably wormlike, more highly organized more commonly on wild bees, and may sometimes be found on willow or other blossoms frequented by the bees.

In conclusion I would quote Langstroth: "My limits forbid me to speak of wasps, hornets millipedes (or wood lice) spiders, and other enemies of bees. If the apiarian keeps his stock strong they will usually be their own best protectors, and unless they are guarded by thousands ready to die in

their defence, they are ever liable to fall a prey to some of their many enemies, who are all agreed on this one point, at least, that stolen honey is much sweeter than the slow accumulations of patient industry."

The President: We are much obliged for this paper. It is entirely an innovation; and the question has not come up very much in reference to the insects that are troublesome to bees. We do not wish to occupy very much time in its discussion, as other matters will come up. Perhaps our manager may have something to say in reference to the Association.

Mr. Selser—I would like to ask the speaker about that second illustration (wolf-fly or bee killer). After I had shipped some queens to one man which he seemed to think did him a great deal of good, he kept on ordering. The last nuclei I shipped to him he sent back just that sort of an insect and said that was the queen I sent him in the nuclei. (Laughter). I would like to know if they get in a colony whether the bees kill them or not?

Mr. Satterthwait: In answer to the question I would say these flies attack bees on the wing and they must be entirely outside of the hive; but they might be caught by this fly right close to the hive. There is a specimen in the box from a party in Louisiana who reported it was the cause of 85 per cent of his queen bees never getting back after leaving the hive. If that was at all general, it would be a serious consideration.

Mr. Moe: I am one of those fellows who like to get as much good things as I can. I move you we take a five or ten minutes recess to allow a little changing about and exercise. We will be in better shape to listen to what is coming after and it will do us all good.

The President: A recess is in order.

AFTER RECESS.

The President called for any suggestion or anything that might be of value which any individual had to offer that would be of interest to those present.

QUESTION BOX.

Mr. France: Mr. President, realizing that our secretary was a very busy man and the time drawing close for our convention, I assumed the responsibility of helping him in so far as an information bureau was concerned by requesting each individual member to ask one or more questions upon bee keeping which to them would be important to have answered. Furthermore, to suggest who among all the bee-keepers of the United States and Canada they would prefer to have answer them. I felt that question to that member would be worth more than his annual dues. I have received a good many questions and largely have the returns from those who were to answer them. With your permission I will read a short reply from Mr. Dadant on questions asked which it was preferred he should answer. Then if we want to take up the same question under discussion here I presume it is our privilege.

Question by N. P. Whitmore.

In using full sheets of comb foundation, how will you prevent drones being reared in worker combs? N. P. Whitmore.

Drones are reared in worker combs wherever these combs are perceptibly larger than the ordinary worker cells, and it is not necessary that such cells be as large as the ordinary drone cells built by the bees, in order to have drones reared in them. If comb foundation be given to natural swarms or to strong colonies in the center of the brood nest, it often happens that the bees lengthen out the center part and, in fact, a great portion of the sheet and place both brood and honey into it before they properly strengthen the upper part. The result is a few rows of cells near the top stretched down sufficiently by the weight to induce the queen to lay drone eggs in them. This, to my mind, is an evidence of the mechanical action of the queen in laying. If laying was all volition and she could lay either drones or workers at will, there would probably not be found so invariably drones in slightly larger cells.

To prevent the occurrence of elongated cells, it is important to have the comb foundation worked out by colonies that are not sufficiently strong to overload it at the start. But a great deal of stretching may be avoided by using a wire near the top as near as within an inch of the top bar. In fact, if the combs are wired, the wires ought to be inserted much higher than it has been customary to insert them, for they are not needed

near the bottom, which never has to carry the load that the upper dozen rows of cells have to support.

A protracted experience induces me to believe that the method of Doctor Miller, to insert fine wooden splints in the foundation, perpendicularly, is yet better than wires, for wires are bound to stretch a little, and although this stretching is usually not sufficient of itself to cause an undesirable elongation of cells, the wooden splints are certainly much stiffer and more substantial.

This is a very good question to discuss and I trust it will be fully debated at the meeting.

Yours truly,
C. P. DADANT.

The President: I might state in connection with the answer given by Mr. Dadant, that bees, when pressed for drone cells, will cut down the workers to within an eighth inch of the base, and diverge them from the common center, thereby getting cells large enough for the production of drones, although they are not quite normal at the base.

Question—How many pounds syrup fed late in fall will make ten pounds gain in the combs?

Mr. France: The other day when I was telegraphed to come home on account of my father's serious accident, I was in a bee yard where a man was feeding for winter stores, and he was one who was going at it, not by guess, but by weight, and he was putting a twelve pound or gallon friction top can full of syrup right on top of the brood frames where it was carried down, inside of twenty-four hours, and stored for winter feed. He was feeding sugar syrup. He had the hive on the scales when he added the syrup, and he had the weight of the gallon of syrup extra, balancing it there. In twenty-four hours the hive had changed its weight until there were only two pounds gained; the rest of it seemed to have gone in worker food, or evaporation. After that, as the bees had become so filled with honey themselves, and as he had got a gain after the first gallon was used, he considered in late fall feeding the first gallon was a waste to get ready for sealed stores. I would like to see in the near future our Association, and all of its members as individual committees, making some careful experiments, not by guess, so that when the year went round we would be able to get the returns from different localities, with different conditions, verified; and it is only by continued effort in different places upon the same subject that we can realize something of value. We are trying that to some extent in Wisconsin. At the last winter annual meeting we appointed twelve committees during the season to try some definite experiments upon different lines, and the results of them we will have at our next winter meeting. I hope the Local Association and the State Association will take this thought and pass it on.

(1) Are drones raised in worker comb good to fertilize queens? (Dr. Whitmore, Gardner, Ill.) Reply by Dr. C. C. Miller.

That depends upon what is meant by the word "good." If you mean can queens be fecunded by such drones, yes. If you mean is it desirable to have queens fecunded by such drones, most emphatically no. A drone cramped in a worker cell so that it can get only a part of its growth is no more fit to use than a scrub bull stunted in its growth.

Mr. Holterman: As to that question of feeding I would like to say a little. Dr. Miller has dwelt upon the importance of certain things. One was the amount fed. Perhaps the majority of us know that in answering that question there has to be a good deal considered. First of all, I think there are better methods of feeding than that one which Mr. France speaks of. I believe that this is accounted for because the method of feeding is not the right method. I find by bottom feeding you can get colonies to take up syrup much better, under more adverse conditions, and with a better average gain than any top feeding I have ever seen. This fall I made up my mind I would again return to feeding, and the reason why I did so was because the stores which the bees got last year were not satisfactory in a number of cases; and I attributed the poor yield I have this year, comparatively some 20,000 pounds in all, to that. I remember what Capt. Hetherington said once, that he never wintered successfully until he fed sugar syrup to his stocks. I have 370 stocks ready for winter quarters. I fed every one of them. They are in twelve frame hives, and they will average between 85 and 90 pounds. I have had

stocks which would not take feed from the top at all, and by giving them a bottom feeder, in practically every case, in twenty-four hours, no matter what the quantity was, they emptied the feeder. The natural way to take stores is from down up, and when that syrup was put on it was warm; it excited the whole stock at once; it helped to warm the brood chamber, and they could go down in cooler weather than by taking the food from up down. I would consider that was a very heavy loss. I have done experimenting, but I am not a very good hand at remembering figures, and unless I have the data with me I do not like to venture upon giving it. But, in order to have the least waste in feeding I believe the time to do it is just about when the brood chamber is empty in the fall of the year, and giving them the food from below, and not using as much water as is given there, but using two parts of sugar to about one of water, and they will take it up better and quicker. I have a bottom feeder, which I got from a gentleman in New York state, Mr. Betsinger; it is a tin pan inside of practically what would be a comb honey super; it has divisions in it made of wire cloth that separators are made from, and it is the length and width of the hive.

Mr. Pratt: It is a very simple matter to have the foundation built into the brood chamber by simply driving off the bottom bar three-eighths of an inch until the combs are constructed; after they are drawn down in shape, turn the comb over and drive the bar on again.

Mr. France: Then I would ask that our bee-keepers in Wisconsin get a frame that has a better bottom bar.

Prof. Surface: I do not think that I ought to challenge the experience of others in bee-keeping, but it is my opinion from what I have seen in this locality that we are using too much sugar when we use two to one of water. There is considerable danger of granulation and filling the cells in such a way that it is not taken out when it crystallizes. I have some that was so fed and it was crystallized and we had trouble with it. I have fed very satisfactorily with equal parts of sugar and water. I was better satisfied with that than any other proportion I used. I should like to know what experience others have had in feeding stronger than equal parts of sugar and water.

Mr. Holterman: We put tartaric acid in. I know that it is a practice which has been used and abandoned. If you take a recent number of the British Bee Journal you will find the statement of some professor which tells you, first of all, that by the use of tartaric acid you do away with the danger of granulation. It has another action, and that is, it turns the cane sugar to fruit sugar; and it has a third action, it tends to act as an antiseptic; and may tend, where there are only a few cells of foul brood, to destroy these germs. Therefore I consider the use of tartaric acid in feeding sugar syrup at any time is desirable.

Prof. Surface: How much tartaric acid to ten or one hundred pounds of sugar?

Mr. Holterman: I will not give it to you now, but you will see it in my next notes in "Gleanings." It is something like a teaspoonful to fifteen pounds, and you must dissolve the tartaric acid before you put it into the syrup. It has to boil after you put in the tartaric acid.

Mr. Cook: Is it necessary to boil the syrup?

Mr. Holterman: I don't want to get into any fight. I think it is desirable to use the tartaric acid. If you use it and want to get the proper results you require to boil it; but it is not necessary to make syrup for feeding by boiling it.

Mr. DeGraw: Last fall I used up about four barrels of sugar; and in 134 pounds of sugar, to fill the kettle, I used about 66 pounds of water, and I took four teaspoonfuls of tartaric acid mixed up in a cup full of syrup and then mixed it with the 134 pounds of sugar syrup.

The President: I might say in responding to Prof. Surface, that the formula which is given is very much like my own. I have fed barrels of sugar. I use about two parts of sugar to one of water. With Mr. Holterman, to fifteen pounds of sugar I would add about half a teaspoonful of tartaric acid dissolved in enough water to fill the teaspoon. The instant it is dropped or poured into the boiling mass it chemically unites and prevents all crystallization afterwards. I have never had an instance of crystallization.

Mr. Selser: I fed last year in the

neighborhood of $1,000 worth of sugar. It was fed in July and August and in equal parts without tartaric acid; and while it was a cold winter and late spring I got hundreds of pounds of nice honey and not a bit of crystallization.

Mr. Hershisher: I would like to ask Mr. Holterman if he thinks it advisable to add any honey to the mixture?

Mr. Holterman: No, sir, I do not. Now, I knew Mr. Pettit, my father-in-law, who I always considered a careful observer in bee-keeping, and I wrote to him about this tartaric acid and he told me he had used it, but he had given it up, finding it was unnecessary, but said he mixed 25 per cent of honey in with the sugar.

I take this stand upon feeding back honey, that there is not one of you who knows that there are not germs of foul brood in that honey. We may not know of any foul brood in our apiary. We may not have a cell of diseased brood in the brood chamber, although that would be exceptional, and still have foul brood in our supers, because the stock might rob it and put it in the super and not feed it to the larvae. So we do not know, any of us, but what there may be foul brood in that honey; and I have known of some splendid bee-keepers who have diseased almost their entire apiary at one feeding by feeding back this honey.

Mr. Hershisher: I would like to ask how you avoid that liability to foul brood with your extracting combs? Does the colony get the same combs back that you extract from?

Mr. Holterman: That is an old chestnut I am met with on all these occasions. When you are extracting from one hundred stock of bees you make it liable that there is some honey from every one of those stocks in the honey you are feeding back, because it is going through the extractor and running down the sides, and therefore you can't guarantee any process of taking in and putting out that you are not going to have some honey of every one of the one hundred there, and if you have one diseased stock you run the chance of diseasing every other one. When I am extracting and have combs out of four or five hives going into one, that is bad enough, but I am compelled to do that; but because I am mixing the combs of four or five stocks up in that way, that is a very different thing from feeding back honey.

(5). What fee is right to charge per colony for transferring bees from box hives to modern ones making two drives, twenty-one days apart?

Depends altogether on circumstances, the main circumstance being the value of the time of the operator. In some cases a man might afford to pay an expert a dollar an hour for his work, and he might charge a bungler a dollar an hour for the privilege of doing it. Possibly it might not be far out of the way to say that the operator should be paid the same as a skillful mechanic for the same length of time.

(6). Can bees be confined in the
What are you going to do?
that day, and it may be wash day.

If that means all wash days throughout the year, it is neither desirable nor practicable. If it means at the time of bringing bees out of the cellar, or the time of the first cleansing flight, then it should be answered that in some way it should be managed that the two things should not occur on the same day. It is easier to change the day of the washing than to change the day of the
(J. H. Johnson, Bangor, Pa.)
hives wash days, and is it desirable?
cleansing flight, but in the case of a near neighbor it is better the bee-keeper should pay for the washing than to have any trouble.

C. C. MILLER.

Mr. France: I want to say it is not because bees on wash days make so much of a disturbance, but I have been called on in my position by members in over ten states this year to settle disturbances between neighbors annd bee-keepers about bees spotting clothes. Some of you laugh about this, but it is no fake or joke.

Mr. Pressler: After the clothes were spotted the first time in this case, the bee-keeper went over and said: "What do you have to pay for getting your clothes washed?" And the answer was, "A dollar." "Well, here is your dollar." The neighbor refused to take the dollar. The bee-keeper came to me and wanted to know what to do.

Mr. Holterman: I have bees in different sections. Sometimes a day will come where it is a nice day to set them out and it is worth perhaps a good many dollars to set your bees out on

The President: Set them out.

Mr. Holterman: I go over to the

neighbors and say, "Now, I don't know when we are going to have a day like this again and it means a good deal for me; but I have no right to have my bees spoil your clothing. If you could make it convenient to do your washing or hang your clothes out the week or so after the bees had had their flight, it would accommodate me very much." By doing that I have yet to come across a single instance where the people were not willing to accommodate under these conditions. I will tell you what will happen: You set your bees out and then they are in for several weeks again, and perhaps when they fly the next time they spot the clothing aagin.

The President: I have practiced just what you have stated.

Mr. Green: I think the advice of Mr. Holterman is very good. It is identically what I would advise doing, but I would go a step further than that. Along in the fall of the year when I take off my honey I am careful to see that my neighbors who are within reach of my bees have some of the nicest honey I produce. They appreciate it; it is a delicacy; it is fresh honey. The result is I pave the way for any little discrepancies or any occurrences of this kind and even though my bees do get out after a short confinement, even though it is not the first time that they have spotted my neighbor's clothes, and they say something to me about it, I explain to them how the bees will fly, and the day came around and it was a mishap that the two things came together, and if there is anything I can do to make it right, I will gladly do it; and I have neighbors that won't tolerate a chicken; they will kill a chicken that comes in their yard, and they hate to think of getting stung with the bees. I would suggest that the first step our bee-keepers take is to distribute a little honey.

On motion of Mr. Moe the convention adjourned until 7 o'clock p. m.

EVENING SESSION.

At seven o'clock the President called the Convention to order and stated that Mr. France would proceed with the reading of the questions which had been asked, and the answers he had received to them.

Mr. France: I confess I have sometimes been busy; at least I have not had the time to read the replies to many of the questions which were sent me. Immediately upon receipt of the questions from members I forwarded them at once to the persons they had selected to answer them. In some of those cases, in the early stages, it was requested that the answers be sent to my home, and later, that they be forwarded to me here; and then still later, when it looked as if my chances of coming to the Convention were doubtful, I was expecting those people would be here. For instance, take the topic which we had up this afternoon, the Plurality of Queens. I received from postoffice while waiting for supper tonight, Mr. Alexander's reply to several questions right on that line, and I did not know until then that I had it. Perhaps it would be well to take Mr. Alexander's views on that subject; and as a further explanation of one whose heart and soul is with the National, I will read the preface to Mr. Alexander's reply:

Delanson, Oct. 7, 1907.

Friend France:

Yours of October 2d received, and while my health is such that it will be impossible for me to attend the Convention at Harrisburg, it is with pleasure that I attempt to answer the questions that you so kindly sent me for consideration.

Question 1—By Richard Simmons. Will E. W. Alexander tell us how he manages multiple queen scheme to secure big swarms for the harvest?

Answer: The same as you would manage a colony containing only one queen, which should be fed a little thin, warm honey or sugar syrup, daily for about five or six weeks previous to the harvest, allowing both queens full liberty through the hive.

Question 2—By Frank Petefish: What appliances would you recommend in view of some day I wish to produce both comb and extracted honey?

Answer: If the hive I used was of the proper size and shape to be a good hive for the production of comb honey, then all I should do to produce extracted honey would be to put another hive the same as the former on top with a queen excluder between, and extract from the upper hive. Under all circumstances I should have all combs in the apiary of the same size, and always use the same number in a hive except when forming nuclei.

Question 3: What are the conditions that permit plurality of fertile queens in terms of peace in same hive?

Answer: I don't know of any special conditions. After the plurality of queens are safely introduced the bees pay no more attention to one queen than they do to another, and as I have seen almost hundreds of them crawling over each other, I have good reason to believe that laying queens very, very seldom sting each other.

Question 4—By Dr. Bohrer: Will there be any real benefit to a honey producer to have more than one fertile queen in a ten frame hive? If so, when and how secured?

Answer: Yes, I think in most cases there will be much benefit. There is no question but what two queens in a hive will keep it more crowded with brood than one will, and to the extent that a very strong colony with an unusual amount of maturing brood will gather more surplus than a medium colony, just to that extent it is an advantage to the honey producer to have two or more queens in a colony. After your colonies have a very large working force, they can be used to secure a corresponding large surplus, or to form increase.

Question 5—By H. Ballon—Can you get more honey per colony, by frequent extracting the combs during honey flow, than by tiering up supers with full combs?

Answer—Yes, I think we can get neardly twice the amount, but you will require some large tanks for it to thoroughly ripen in before it is barreled up. We make it a point to extract just when the bees commence to cap it. We seldom have any surplus except buckwheat and golden rod and occasionally some bass wood. We find it is a great improvement to the honey from these flowers to keep it in the tanks about two weeks, so it will lose a part of the strong odor and unpleasant flavor it has when first extracted. It gives much better satisfaction and sells far more readily than if it was barreled up as soon as extracted. I know that any honey that has a strong disagreeable odor and taste is much improved by being exposed to the air for a short time.

In answering the above questions I have briefly given my opinion from past experience, and am sorry I cannot be with you, to enter into a discussion of the same.

E. W. ALEXANDER,
Delanson, N. Y.

The members should bear in mind the conditions at Mr. Alexander's home before criticizing his replies.

The President: That point you made reference to as to the late honey flow, buckwheat and golden rod, would have a material influence on the colony as to swarming. It is the early honey flow that induces swarming very much.

Mr. Hershisher: I have the utmost respect for Mr. Alexander's doctrines, nearly all of them, but as to this one of teaching the advisability of extracting honey before it is capped I enter a most vigorous protest. It may be all right for him, but he is answering a question that goes to the bee-keeping world. I want to say that the fact the honey candies is no indication that it is ripe or thick. Honey may candy in different ways. With a fine silky grain it indicates ripeness; with coarse crystal it indicates a poor quality. The way to build up a honey market is to let it be known that we allow the bees to ripen the honey as best they can. If we are going to teach the bee-keeping public that honey can be extracted and ripened afterwards, we will have about nine-tenths of the bee-keepers will not be ripening it afterwards. I don't think they get as good honey.

The President: Don't you think that the object of extracting before it is sealed is to get the quantity of honey with Mr. Alexander, and also to prevent swarming?

Mr. Hershisher: That may be so, but the result is the injuring of the market for honey. Let us have good honey; let us have it as good as the bees can make it. (Applause.)

Mr. Pressler: If I understand that argument of Mr. Alexander's correctly, I infer that by leaving it in tanks to ripen, evaporation takes place. If it takes the same amount of artificial heat to ripen that honey, will not that reduce that amount to the normal, the same as though it had been reduced by the bees?

The President: That is the question. Take a section of honey that is not sealed, left green apparently, and let that remain in a warm room until it is thoroughly thick, I will guarantee that the cells will not be lowered to any perceptible degree. And with sealed honey the same way, the longer it is kept in a warm room the better it is and the thicker it becomes, and yet the cells are apparently as well

filled as before. I think his gain in quantity is greater than the loss.

Mr. Hershisher: I think there is, undoubtedly, a gain in quantity, but I don't think that gain in quantity is sufficient to compensate for the loss in quality. Up to the present time we have a statement being made by a person who makes it on theory only.

The President: I think we want to bear in mind that the writer is a skilled bee-keeper and will produce good results in either way; while your argument that we should warn people against promiscuously doing that sort of thing is right.

Mr. Hershisher: I think it is pernicious to teach this doctrine. I am interested in producing an article that is as good as the bees can make it. I don't believe my chances for selling my honey for a good price are anywhere near as good if I allow this kind of honey to be put on the market. We should teach the doctrine of getting the honey as good as possible.

The President: Are there any artificial processes still in the "A. B. C.," Mr. Root?

Mr. Root: These are all out.

Rev. Mr. Cleaver: It would be quite an advantage to me in understanding the argument if I could know whether those who rise to speak produce buckwheat honey in their sections. I rather think that enters into the argument very materially. When buckwheat honey is ready to seal I think but few of you could tell the difference at that time if it was extracted or sealed and left in the hive for two or three weeks. Last year I tested it. I extracted one 60 pound can and there were not half a dozen cells sealed in all I extracted for that; in the other can which I extracted every cell was sealed and had been ripe for some time, and yet the men I gave it to couldn't tell any difference in flavor or thickness. When you take it off unsealed you cannot drip it from the combs as other honey. You shake the bees and the honey does not fly out as in others.

Mr. Hershisher: In mine it does.

Mr. Selser: I throw out the challenge to Mr. Cleaver on that and if I can't tell him the difference I will give him the cap. I should like to have it go out from this convention before the United States that we do wrong in evaporating honey in tanks instead of letting the bees do it in the ordinary and natural way. I thoroughly coincide with Mr. Hershisher.

The President: While Mr. Alexander's article is correct in detail, I think the sentiment here is against that practice.

Mr. Holterman: I admire many of Mr. Alexander's writings; I think he has sent out a large number of very valuable articles; but I think he is entirely wrong upon this question of taking out honey in the condition in which he speaks of. He can't do it and manage the way he says he does. I can prove to everyone in this room he can't. A man who has a stock of bees with the large worker force he speaks of, and has one extracting super upon the hive, can't extract before the honey is capped, and have that honey all in the condition where it is just ready to seal. If you take anything like a good buckwheat flow we all know that a stock like that, can, in one week's time, fill a 12 frame super. Where Mr. Alexander makes his mistake is, he only uses one extracting super. If he would use two or three he would not be able to say that he could get nearly twice the amount of honey by extracting it before it is capped.

The President: He saves the elaboration of the capping, and that is thrown into honey.

Mr. Holterman: And you tell me that it does not take anything like the amount of pounds of honey to produce a pound of wax that they generally say it does?

The President: I think eight pounds will do it, but it is a saving nevertheless to have honey taken off without capping.

Mr. Hutchinson: How about the involuntary secretion of wax?

The President: I scarcely believe in that.

Mr. Hershisher: I move that it is the sense of the convention that the throwing of unripe honey upon the market, or taking off honey before it is capped, in other words, curing it artificially, is a detriment to the bee-keepers of this country. (Motion seconded).

The President put the motion which, on a vote having been taken, was declared carried.

Mr. Pratt: Where does Mr. Alexander market his honey? I understand the brewers would just as soon have sour honey as sweet. In fact, brewers prefer it a little sour, because it hastens the beer; and there is a

large quantity of honey sold in that market.

Mr. Holterman: Mr. Cleaver is quite right in one way. Buckwheat is the thickest honey we produce in Canada. If it is extracted about when it is ready to cap it will be quite equal in thickness to our other honey. It is difficult to extract it in anything like cool weather. But there is a decided difference in the flavor of honey that has been on the hive for some time after capping than it has before it is ready to cap. I sometimes extract honey when there is a portion not capped when the supers are full and beginning to be fairly well crowded. But we aim at an ideal and we carry it out as nearly as possible.

Mr. Boyden: I have been advised that Mr. Alexander sells large quantities of his honey in the New York markets.

The President: Do you know how it is consumed?

Mr. Boyden: As I understand, a great deal of it goes to the independent bakers.

The President: That is true of extracted honey generally.

Mr. Boyden: Yes.

Mr. Miller: Must we consider extracted honey not ripe until it is capped? If so, what are we going to do with honey that comes at the latter end of the flow? We wait three or four weeks and get nothing on top of it; it lies there and still it is thick ad yet not sealed. If you take a comb right in the flow, the honey is very thin and it will shake out. If you let it go for ten days or two weeks and leave it in the hive I don't believe it will shake out.

Mr. Hershisher: That is ripe honey.

Mr. Miller: If the flow is continually coming part of the honey, at least, is green.

The President: You advance the fact that honey after the flow ceases becomes ripened honey whether sealed or otherwise?

Mr. Miller: That is it.

Mr. Cleaver: In order that the people here may not misunderstand the statement I made, the honey was all extracted at the same time, and the capped honey was placed in one can and the uncapped honey in another, and I considered one as ripe as the other. That was after the honey flow was over. I would not have you think I advocate extracting honey uncapped.

Mr. Holterman: When your honey flow ceases you have a lot of brood in the brood chamber and there is a good deal of that uncapped honey that is used in finishing off the brood.

Mr. Moe: Along that line I would like to ask some of the bee-keepers here where this nectar is deposited, in the brood chamber or in the sections?

The President: How would it do to ask Mr. Doolittle about that? That is a fine question. It requires a great deal of close observation. Perhaps Mr. Root can enlighten us somewhat on that.

Mr. Root: I have never seen that question satisfactorily answered. Mr. Doolittle has made the statement that the young bees receive the honey from the field bees and that they themselves carry it and put it in the cells. The statement also has been made by others that the old field bees would deliver the honey near the base of the combs, and the young bees transfer it and during the process will ripen it somewhat and carry it above. But, I do not think there has been any authentic statement on that point that is scientific.

Mr. Selser: Nature does its perfect work. I could see no reason why there should be a transfer of nectar from one bee to another. In taking honey, when the honey is coming in your frame, it is 25 per cent and the evaporation is 50 per cent, and that goes in the cell; that is my opinion.

The President: That confirms my view of it.

Mr. Holterman: I think there may be a reason why it may be possible. If the glands of the younger bees are more active in their secretions I can see the advantage of the older bee giving it over to the younger.

Mr. Moe: I want to add a fact to this that may be a help. A swarm issues and they are field gatherers; they gather honey and they will deposit it in the brood nest. When the young queen comes along I have frequently found the brood chamber pretty near full of honey. Later on, when the young queen commences to lay, that honey is moved above; beautiful sections will be formed; and very rapidly that honey will be carried above.

The President: But we are presuming the brood nest to be entirely filled at various stages. There are strong arguments in favor of the bees carry-

ing it directly to the sections. Take a colony with six or eight frames entirely filled with brood and a little border of sealed honey around, you can see during an intense honey flow there is no chance of depositing much in the cells. I have had supers, 47 sections, filled in twelve days, and the question came up in my mind where that honey was put. I have read Mr. Doolittle's article on that very point. If you look into a section you can't find a bee with ragged wings in there. The comb builders are all the middle aged or younger bees; the ones that carry the honey are undoubtedly the same in there, and yet we find the old bees visiting the flowers. And now we come up against it again and can't decide fully as to the course pursued by the bees in that respect.

Mr. Cleaver: Why can you not decide absolutely by marking the bees and watching them in an observation hive?

The President: I think the bees would be insufficient in number to prove the question.

Mr. Cleaver: I was discussing the question today with a man who has 30 colonies of bees and has an observation hive. Incidentally I spoke to him about Mr. Doolittle's remark as to the worker bees transferring the honey to the younger bees; and he says, "that is absolutely untrue; I have tested it; I have marked them over and over again and watched the bees, watched them deposit their honey and come out again. It takes them about one minute from the time they go in to the time they come out again.

The President: I believe that is right.

Mr. Holterman: Could it not be done by changing the queen at certain stages?

Mr. Hutchinson: I think that is what Mr. Doolittle did.

Mr. Cleaver: This man put some flour on the back of the bee.

Mr. Miller: I changed queens one time with a black colony of bees, and had young bees of yellow strain go into the supers, while I could not find a black one in during the day.

The President: That is an established fact.

Mr. Miller: I think the young bees do it.

Mr. Hilton: We all know that in a heavy honey flow we hive a new swarm and we haven't any very young bees in that new swarm, and we find that large swarm immediately begins to store honey above and below. Where do the young bees come from that carry the honey above, if so?

The President: Don't you think bees constantly swarm of all ages above the time they are able to fly?

Mr. Hilton: The question arises, at what age. How young are the bees when they leave and go with the swarm? My opinion is that the very young bees and the nurse bees do not go with the swarm; and that often time when the bees issue and take up the work of the hive as a new colony, that the older bees sometimes do the work of the so-called nurse bees.

The President: That is true in the spring, but you have seen a colony that has swarmed and left it almost depopulated, on the other hand, so that they must have gone in large numbers under two weeks old.

Mr. Hilton: Yes, but I question if very many go under six or ten days.

Mr. Holterman: And bees so young that they could not fly would not be 48 hours old.

The President: Don't you think they were rushed out in the mad rush? I think those that would volunteer to go would be able to fly. I think the excitement and rush carries out some that are unable to fly.

Mr. Holterman: Granting that took them out, I don't believe the other young bees that were able to fly did anything else than follow the swarm.

Mr. Cook: This discussion touches the economical nature of the bee. They are like the human family. If the old bees come with a load of honey and there are a lot of youngsters around that have nothing to do, the old bees set them to work carrying it up and building super honey; and if they haven't got the young ones the old bees got to do it themselves. (Laughter).

Mr. Hershisher: Under varying circumstances, as we have heard, the bees act in different ways. In the spring there are no nurse bees, so the old ones have to do the nursing. Later on when a swarm issues perhaps the circumstances are different again.

The President: To be technical, there are young bees in the spring, but they are not numerous.

Mr. Hershisher: The bumble bee queen acts as nurse, queen and honey gatherer; she is the "whole push."

Mr. Holterman: I object to the statement that there are not young bees in the spring.

Mr. France: Now that we have this committee on the question of securing information as to the honey secreting plants, could we not have a committee to have some observations made for another year's report which would be worth more than the ordinary guessing on this point?

The President: I would undertake to make some tests myself.

Mr. Selser moved, seconded by Prof. Surface, that a Committee of three be appointed, with Mr. Pratt as chairman, and that it be their duty to make observations on this question and to report either verbally or in writing at the next Annual Meeting. Mr. Pratt to choose his associates. Carried.

Mr: Pratt: I would start off and ask the bee journals to call for investigations as soon as possible. I will do my best.

Prof. Surface: I think it would be well to recommend auxiliary committees in connection with this committee. I would be willing to act in this region.

Mr. York: I was going to suggest Prof. Surface be a member of that Committee if he could "lie and sit and watch."

Mrs. Surface: Evidently that gentleman doesn't know Mr. Surface as well as I do. He doesn't sit still two minutes at a time during the 24 hours of the day.

Mr. Holterman: I will confess myself the more bees I keep the more difficult I find it to carry on investigations of the nature spoken of; and I for one am sorry to say I could not do it, because I would not undertake to do it unless I could do it properly; and I hope no one will unless they can do it properly. That is in connection with the secretion of nectar and nectar glands. Some people think if the blossom is once emptied of its nectar it remains empty.

The President: It does under some circumstances.

Mr. Holterman: I would like if some investigations were carried on along that line to find out what the action is. Whether it is like a spring or whether it does remain empty. In my estimation there are just two classes of people who can do that work: Intelligent people who are close observers, who have owned a few colonies and who have time to devote to it. People that sometimes we are apt to despise, but who are very valuable. And, on the other hand, the Government Experimental Stations. I would like to have them make some observations along this line at Washington or at other places where they are carrying on work of this kind.

Prof. Surface: I believe the last speaker has touched upon a most fundamental point—the relation of our state experimental stations to agriculture. They ought to take up these points. I think they would do it if we would use our influence to induce them to do so. I feel it is one of the most important things for us to do, to get these trained men at work in our subjects and on our behalf. There is no reason why they should neglect wholly and entirely some experiments along the line of bee-keeping. I believe if members of the National in each respective state and the members of the respective State associations would write calling attention to the neglect of this important although minor branch of agriculture and try to prevail upon them to institute a series of experiments and observations by the men trained for such work and hired to lie still in front of a hive—a man can afford to lie when he is hired for it.

Mr. Moe: How do you spell that?

Prof. Surface: It is all spelled the same when you are at Harrisburg. I say, if we would do that I believe they could not refuse to take action. If we would use the influence of our State and National Organizations to pile letters upon them week after week after a while it would become such a burden to them, to their minds and souls, and consciences, that they could not get out of it any other way than to establish an apiary experimental station to work in conjunction with the other branches of agriculture.

I take pleasure in offering a resolution that this Association request experiments and investigations by the State Experimental Stations as well as the continuation of the work by the Federal Government. Whatever we can do to help Dr. Phillips I certainly think that also should be a part of our work.

President: Let the question of the secretion of the nectar and the relation Mr. Holterman be prominent.

Prof. Surface: I would say to investigate certain problems such as the

secretion of nectar and the relation of bees to horticulture. I believe the only way we can get the answer is to get down to it by the trained scientist who will devote his whole time to things of this kind; to watch for 24 hours at a stretch the movements of the media, just to see what it does and to do the microscopical work with his own eye; and if he has to go away to his lunch, have his assistant place his eye to the glass until he returns. If we could have this kind of investigation applied to bee-keeping we would commence to get somewhere; and if this action on our part does nothing more than to put the machinery in motion, it will be doing something of importance.

The President stated the motion.

Dr. Phillips: This subject comes pretty close home and perhaps I might be permitted to say a word or two in regard to the work at Experimental Stations on Agriculture. It has been a matter of regret to me ever since I have been connected with the Federal work that such stations have not taken a greater interest in apicultural work. I have thought about it a great deal and have talked to a good many entomologists in regard to the matter; and there is one difficulty which is almost insurmountable. When a man is dealing with the treatment of some injurious insect in the Federal Government, there is a man in almost every State who will be able to understand his point of view, who is already a trained entomologist, and who can appreciate that work. But I have had some experience within the last year in trying to get men who were able to carry on experimental work in apiculture, and I know positively that it is a very hard thing to get men who are able to make observations in apiculture which are worth anything at all, and for one very important reason, first of all, a man must be a scientist, he must know how to observe, and the most important thing is that he must be a bee-keeper; he must have a general knowledge of the practical working. If you ask State Entomologists to carry on investigations in apiculture they are scientists perfectly competent to do it, but they are not bee-keepers. Several states have undertaken to carry on this kind of work and it has resulted, in almost every case, in a general bulletin on bee-keeping such as any bee-keeper can compile himself to better advantage, and we have enough of those. The important thing in furthering apicultural investigations is to get schools interested in bee-keeping, not to teach it to everybody, but to advanced students in Entomology, who are zoologically interested in the bee as an insect for study; until that is done the State experimental work will not amount to anything.

The President: The point that Dr. Phillips has made is well taken, and it becomes a question whether any good results will flow from this resolution. Shall we put the question?

Mr. Holterman: I want to say that what Dr. Phillips has said is perfectly correct. I want to add something more to that, and that is, we as bee-keepers have not taken our profession seriously enough. We have belittled our own profession. We have been satisfied with the appointments which were made through wire-pulling and political influence, when far better might have been done; although I will admit that even when the best has been done we might have wished for more. I for one think the right thing is to impress upon your State and Federal and our Provincial and Dominion Governments, or those in control, that we want these investigations, and that we feel we need them just as much as horticulture or agriculture does, and we are going to stand for the very best appointments being made. When we do that we will have done already much better than is being done at the present time; and at the same time let us aim at what Dr. Phillips says.

The President: Now, we have, right in the previous motion which was carried, that Mr. Pratt be the Committee to select two more to do this very work, to make such investigations; and this organization has men that can do just as well as the Scientist.

Dr. Phillips: The point is this, a scientist is not necessarily a man who spends a lot of time studying certain things; a scientist is a man who can put facts together, and a man who can do that can make observations, and not every man can do that. I think, Prof. Surface, if we carry out the original motion that committee will be able to accomplish what this motion of yours calls for.

Mr. Selser: I hope this motion will prevail.

Mr. Hershisher: Perhaps I may not

be able to arrange facts together as Dr. Phillips has said, but it seems to me there is not such a poverty or dearth of scientists in this organization as he seems to indicate. We have Dr. Phillips and Prof. Surface and Prof. Cook and Prof. Scholl, and I think we could drum up a few more that would be able to carry on this work in this organization.

The President put the motion, which was carried.

Mr. Holterman moved, seconded by Mr. Moe, that the General Manager of this Association communicate with the State and Federal, and the Provincial and Dominion Governments, asking that these investigations for Apiculture and its advancement shall be carried on in the same way as other branches of Agriculture.

Prof. Surface: I would hope that the communication to our Federal Government would be in such a way as not to ignore what is already being so well done, or in such a way as not to criticize it, but in such a way as to ask that there be auxiliary facilities given to Prof. Phillips and his corps of assistants, and that he be given a free hand to work out and commend what has been done. While the different States are justly liable to the severest criticism for their neglect of apiculture, our Federal Government is not so.

Mr. Hilton: Relative to our States and our institutions not taking cognizance of things we think they ought to, I feel we are very largely to blame. I get this from what little legislative experience I have had. Our States and our superiors in office, and all of these men are willing to co-operate with us if we will give them to understand what we want. We belittle our own occupation; and we do not set before our institutions, our States, our Agricultural Colleges, our Experimental Stations and these positions where this work can be done, our needs, our necessities, wants and desires. It behooves us as members of this Association to form ourselve into a Committee of the Whole, as it were, and allow our voices to be heard and our wants to be known; and we will find that these institutions and these men are only too anxious to do for us the things we want done.

The President put the motion which on a vote having been taken was declared carried.

PRESENTATION TO MR. FRANCE.

Mr. W. Z. Hutchinson: When a good man passes over the River to the great Beyond we mourn his loss and we write eulogies and put flowers on his coffin. It seems to me that it would be wiser and better if instead of doing that we would sing his praises and bestow our gifts while the heart was yet warm and could beat in response. And in line with that thought I would like to say a few words about our genial Manager, N. E. France. (Applause.) I have visited him in his home and traveled with him over both his State and my own, visited infected apiaries, and I have roomed with him at Conventions and bunked with him in a week's trip across the Continent when this convention was held in California; and we have had long and continuous correspondence and personal consultation as to how the affairs of this Association should be managed. If there is any member in this Association who knows Mr. France better than anyone else, I am that man. I say it freely and openly and proudly that no man in this country has worked longer or harder or more unceasingly or unselfishly for the upbuilding of bee culture than has Mr. France. (Applause.) And not only this but he has done the work for a mere pittance. There is no private concern or corporation that could get a man for five times the amount we pay him to do the work he does. I have thought for a long time it would be a very appropriate thing if we would show our appreciation in some fitting and substantial manner, and with that end in view about a month ago I sent out a postal card to the members, which I will read:

"Flint, Mich., Sept. 26th, 1907.
Bro. Member of the National:

If any man in this country has worked long and unselfishly for the good of bee-keepers, and especially for the members of the National, it is our General Manager, N. E. France; and I have long thought what a kind act it would be for us all to club together and present him with some little token of our appreciation. Suppose we contribute a little mite apiece, and get a gold watch and chain, as good as money will buy, have a suitable inscription engraved inside the

case, and present them at the coming Convention at Harrisburg, Pennsylvania; therefore let me ask you to send whatever amount you can afford to spare—no matter how small the amount, if it is sent freely, yes gladly—and with the money thus received I'll buy the watch and chain, have the inscription made, and see that the presentation is properly made at Harrisbug.

As ever yours,
W. Z. HUTCHINSON."

There were several hundred responses to that card, and they are of such a nature that I think the person that is to be the recipient of the present would be pleased. The majority of them were ten cent pieces, and then some gave twenty-five cents, and some fifty cents, and once in a while a man gave a dollar; two or three gave two dollars; two or three gave three dollars; and two men gave five dollars, but in all it amounted to something over $75. But, the best part of those responses was the letters accompanying these remittances. So many of them said, "I thought a great many times just exactly as you did. In fact I thought of doing the same thing and now you have got the start on me." I don't think there was one cent in that contribution but what was sent freely and gladly. Some of the replies were rather witty and facetious you may say. For instance I remember one said, "I presume Mr. France does need watching and I wouldn't wonder if he needed chaining too. I send twenty-five cents to help do the job."

With reference to the watch that we have, the case is made by the Philadephia Watch Company. I think there is no company makes a better case than they make and we have got the best case they make. In that case we have put a full jewelled Elgin movement, seventeen jewels. I think that to me would be the most valuable feature. We have put an inscription in the back of the case which says, "A token of appreciation from the members of the N. B. K. A. to their Manager, N. E. France." I think any man might be proud to merit such an inscription, and Mr. France certainly merits it.

Mr. France, will you come forward and let me watch and chain you?

(Mr. France came forward). (Applause).

(To Mr. France): We want you to take this and wear it next your heart and we want that heart to beat long and faithfully and just as steadily as that little balance wheel beats in there; we want your countenance to ever be as bright and smiling as this little face. We want your days to be as long and as full of good works.

Brother France, we have tried to fill your cup of pleasure to the brim. We wish to see it overflow, and in that far western home of yours there brain and nimble fingers looks well to the wants of her household, and we have been led to believe that were it not for that bright brain and those nimble fingers you would be unable to fulfill the duties of your office so well as you have. It is under her guidance of affairs when you are away that you are able to do this, and we esteem it a rare pleasure to at the same time send her some little token of our appreciation; and for that reason we have a dozen solid silver teaspoons, and we have engraved on the top of the handle in old English script the letter "F," and on the back in smaller script the letters "N. B. K. A." We want you to take these to Mrs. France and present them to her with our compliments and tell her not to keep them just for company, but to use them every day.

When you take up one of those spoons in your hand so easily and lightly, remember that just as my hand takes and holds that spoon so easily and lightly, that all of this Association stands back of you and will hold you and support you just as easily as my finger supports that little spoon. (Applause).

After the presentation to Mr. France had been made and the members present had congratulated him, on motion of Mr. Hilton, the Convention stood adjourned until Thursday, October 31st, at 9:30 a. m.

SECOND DAY. (Fourth Session). Oct. 31st, 1907.

Owing to the indisposition of the President, the Vice President, Mr. G. E. Hilton, took the chair and called the Convention to order at 9:30 a. m.

On motion of Mr. York, seconded by Mr. Hershisher, two Committees were appointed, one on Resolutions, and one on Exhibits.

Mr. France: Mr. President, and, I will say, Brothers and Sisters of this

Convention, I have tried to do my part, but last night I was shot and could not find words to express myself. I want at this time to extend to you not only the thanks of myself, but of my home companion.

As to the growth of our Association, I have been censured to some extent, and I wish to give you this little comparison.

In 1906 we had 410 members who paid one dollar each. In 1907 we had 416 members who paid one dollar each. In 1906 there were 825 in co-operation with our Association who paid fifty cents each; whereas in 1907 there were 1008 who came in at that rate. The additions for 1906 alone were $821; and up to the time I left home were $974 for 1907. Of those, New York state has contributed by single membership 56 at one dollar each; and one county association consolidated, coming in, gave us 21, giving us $10.50.

Again, the sending out and getting in of statistical crop reports and incorporating that in the Annual Report has cost us from $75 to $80 per year. I foresaw in the early part of the season that a crop report was of no avail whatever for 1907. I could count on my fingers all who could say they had a crop. Why then use that fund when you had no crop report? And yet I must say there is a decided advantage. I would like to have seen it in order that we might know how much the shortage was. But, on the other hand, I have in many instances taken the responsibility of advance thoughts, perhaps not to the advantage of the Association. I have used about the same amount of funds in the Information Bureau Sheets sent out during the year, hoping that they would be worth to the convention and to our entire membership more than the little statistical report. There are some desirable features in it and some the reverse. It has meant a vast amount of labor for me, and it has helped many, more than the majority realize. Whether it is advisable to continue it or not is a question. The Annual Report membership list is being printed this week, of which I have a carbon copy, and will appear, as you see, name and address, two columns on a page, in the Annual Report this year. So that as soon as I get the Report from our reporter and get it into pamphlet form you will each have a full report. The envelopes are already received at home and addressed waiting for the report.

Again I have been asked, What does the Treasurer of this Association do to keep a record of all the finances of the Association? I will say in brief it has been my rule when home never to go to bed without everyone's dues being receipted, unless perchance it happened to be a long list of a convention assembled where it would take me late into the morning to receipt for them. Letters in reply follow as soon as I have time; and upon my State Inspectorship work many times I have carried a bundle of letters in my satchel, answering on the train and at the station, which may account for some of the wiggles in the script.

Then there seemed to be a time when this Pure Food law was coming into effect, and there was much pertaining to our interests in that. I believe that it is one of the grand, good things that the Gevornment has done for us in the marketing of our product. I advanced funds, not of the Association, but of my own, to secure designs from different artists, suggestive of something that we might use, and I found by enquiry that the mason fruit jar sold more extracted honey retail, take the United States over, for food consumption, than any other one package; and therefore I thought if we were going to talk about labeling let that be the basis, get something that would fit that; and in compliance with that this little sealed label, which you all have seen, was designed so that it would fit on top of the mason fruit jar, and then when you turned the flaps down you had a seal, and it was a guarantee from the producer to the consumer so long as that little seal was unbroken. I have been surprised at page after page in the ledger being taken up with making a record of seal label orders that have come in. One member in our own State said, I will try 50 of them. I said it costs just as much to print 50 as 500. He seriously objected to taking 500. I said a dollar is not very much of an investment and it buys 500. It is just what they cost the Association. There is no profit anywhere. I get them wholesale. Well, he said, send on 500. Since then he has sent in an order for 2000

and just before I left home an order for 10,000.

And let me say as a word of explanation I use the same thing as a letterhead. The question came up yesterday will that be changed. My intention is that it will not be changed near future.

Mr. Holterman introduced the fol- would advise doing that in the very lowing resolution: Moved by Mr. to keep this design, except an election might change the names of some of the officials in the letter-head; but the label itself remains the same, together with your registered number.

Mr. Hershisher: I would like to ask why it is that you particularize New York as a state that has furnished so many members and so much dues?

Mr. France: Because in former years it was one of the great supporting States of our Association and part have declined. Some carried the im- will come in. If it is not next year, I so long as the Organization see fit pression that the State had all declined, which is not true. I want to say that there was a large portion of the State of New York which stayed with us, and the balance are coming back to us. (Applause).

Mr. Hershisher: I am of the opinion that the very best thing this Association could do to get New York back is to go right into the heart of the enemy's country with the Convention. For instance go to Syracuse next year, or some other city that is centrally located, and see how many members R. F. Holterman and seconded by Mr. W. Z. Hutchinson, and Resolved, that the members of the National Bee-Keepers Association, in Convention assembled at Harrisburg, Pa., feel that owing to the very many duties of their present Secretary, Mr. J. A. Green, and his inability to attend to these duties properly, this position should not be forced upon him for another year. That we take this action with regret, realizing that if other duties would permit, Mr. Green would make an able and capable Secretary.

It is further resolved that whilst we would in no way seek to dictate to any member how to vote, in view of all the circumstances, we would recommend that at the coming elections Mr. O. L. Hershisher of Buffalo, N. Y., receive the undivided support of the Association.

Mr. York called attention to the fact that while he had no objection to the motion in itself, that this was establishing a precedent contrary to the prescribed form of nominations.

The discussion on this motion was participated in by Messrs. Pressler, Moe, Holterman, York, Selser, Hilton and Hershisher, after which the motion was put and carried, with but two dissenting votes.

Some little discussion took place as to the advisability of electing the officers at the Annual Convention instead of in the manner at present followed, but it was pointed out that this would mean a change in the Constitution of which a year's notice would be required, and that even then it was not thought that this would be a solution of the difficulties which were found to exist at present.

Mr. Hilton announced the Committee on Resolutions as follows: Rev. H. W. Bendon, Prof. H. A. Surface and Mr. W. A. Selser

Committee on Exhibits: Messrs. W. Z. Hutchinson, O. L. Hershisher and H. E. Darby.

Mr. Hilton called on Dr. Phillips to present his paper

Dr. Phillips: Mr. Chairman and Members: Mr. Cleaver spoke yesterday about a series of letters which he had from officers of the Association. I would like to ask if I got the same series. Evidently there was an awakening or something about the time those letters were written, and Mr. Cleaver and I got three letters apiece asking for papers. Owing to the lateness of the day I did not feel I could afford to prepare a paper which would be worthy a presentation at the Annual Convention of the National Association, but I replied to these letters that I already had prepared a paper entitled "The Production and Care of Extracted Honey," and if desired I would read a portion of that paper at this time. As some of you know, Mr. France collected a series of samples of honey to be used at the St. Louis Exposition. He very kindly turned these samples over to the Bureau of Entomology through me and they were in turn sent to the Bureau of Chemistry, and I think the samples of honey and the analyses which were made would constitute the most complete series of analyses which has ever been made of American honeys. Several things came up during this analytical work which

needed some explanation, and I therefore have written a paper on the production and care of extracted honey which aims to bring these points out. The first part of the paper, in order to make the paper general, included some of the ordinary directions for this work which it would be entirely superfluous for me to read at this time. I shall first discuss the ripening of honey.

THE CARE OF EXTRACTED HONEY.

By Dr. E. F. Phillips,
In Charge of Apiculture, Bureau of Entomology.

I was recently asked by the officers of the National Association to prepare a paper for this meeting. However, owing to the shortness of the time after the request came, I was unable to prepare a new paper, but I agreed to read a part of a paper which I had prepared for publication on the production and care of extracted honey. I shall omit the first part of this paper which deals with the production, and shall read only the portion pertaining to the care of the honey after extraction. The entire paper will be published soon as a part of one of the bulletins of the Bureau of Entomology.

The Ripening of Honey.

When nectar is gathered from flowers by the worker-bees, the amount of water contained in it is very high. It is generally supposed that, by the time bees reach the hive to deposit the nectar in the cells, part of this water has been removed; at any rate, during the process of ripening, the amount of water is very much reduced, until, in thoroughly ripened honey, it will not exceed 25 per cent and is generally not more than 20 per cent. Some very ripe honeys will have as little as 12 per cent of water in them. If more than 25 per cent of water remains in the honey at the time of extraction, it will probably ferment.

The ripening of honey consists not only of the evaporation of the surplus water of the nectar, but especially of the transformation of the sugars of the nectar into the levulose and dextrose of honey. Unripe honeys contain a larger proportion of sucrose or cane sugar, and it is probable that the longer the honey remains in the hive the less of sucrose will be found in it. While honeys vary all the way from zero to 8 or 10 per cent in their sucrose content, the poorest honeys are those which contain the least. The official honey standard of the Association of Official Agricultural Chemists allows 8 per cent of sucrose in honey.

It is the policy of most bee-keepers to allow this ripening to take place in the hive by waiting until the honey is almost all or entirely capped, and this is undoubtedly the preferable method. It is a matter of common observation that honey which remains in the hive for a long time has a better "body" and has more of the characteristic honey aroma. By ripening in the hive, honey gets its characteristic flavor to a greater extent than is possible in evaporation outside the hive.

There have been several machines devised for the artificial ripening of honey which has been extracted "green," this is with too great a water content. The principle on which all of these are constructed is the application of heat, not to exceed 160 degrees F., for a sufficient time to reduce the amount of water present to about 20 per cent. Either sun heat or artificial heat may be used. In the western part of the United States honey may be, and usually is, extracted before it is all capped, because it is the general practice of bee-keepers to run the honey directly from the extractor to large tanks sometimes holding several tons, out in the open, covered with porous cloth tightly tied down to exclude bees. Many of these tanks are contracted at the top, leaving only a comparatively small opening. On account of the extreme dryness of the atmosphere and total lack of rain during the dry season, this partial evaporation outside of the hive takes place very rapidly.

The advocates of ripening outside of the hive argue that, if honey is extracted before all the water is removed from it, the bees have less to do inside of the hive and can devote almost all of their time to gathering nectar in the field. This obviously would result in an increased amount of nectar, and, consequently, provided the forage will produce it, in an increased amount of honey. They argue that it is impossible to detect any difference between honey ripened inside of the hive and that ripened outside, as far as flavor is concerned, but

this is a point on which many other bee-keepers and experts in honey-tasting do not agree with them. It must be admitted that, for general sale, the delicate aromas of well-ripened honey are not necessary, since the purchasing public is, as a rule, not educated on this point; but it certainly pays to produce the very best article possible for the further education of the trade, and, therefore, a thorough ripening inside of the hive is very much preferable. To insure this, it is better to tier up the hives rather than extract as soon as a hive-body is full.

On all honeys, after extracting, if allowed to stand in a vessel, a scum will rise to the top, made up of impurities, such as wax, brood, dead bees, and particles of dirt which may get into it. This is particularly the case with honeys which are extracted when not thoroughly ripened. In all cases honey should be strained as it leaves the extractor and subsequently skimmed until no further impurities come to the top. It is frequently the practice to draw honey from the bottom of the tank in which the honey is stored, through a "honey-gate," so that the impurities do not get into the smaller receptacles in which the honey is to be packed.

The thorough ripening of honey cannot be too strongly recommended. Honey attracts moisture, and there is always a tendency for a very thin layer to form on the top of the honey in which the water content is very high. In such a film the amount of sugar is low, the acetic-acid-forming a film of thinner honey is always presbacteria can grow rapidly and the honey becomes sour. In thoroughly ripened honey it is very probable that ent, but, in such a case, the sugar content is so high that the bacteria cannot grow.

It is desirable that honeys from different sources be kept separate as far as possible if the product is to be used for the bottling trade. This can be done only by extracting at the close of each honey flow. While it is probably impossible to get a honey from only one species of plant, except under the most abnormal circumstances, at the same time honey may generally be removed at the close of each flow so that the total quantity will have the characteristic flavor imparted by a single kind of flower.

The Granulation of Honey.

Almost all honeys granulate or "candy" after a certain time, and may become solid. This phenomenon varies greatly in different honeys. For example, alfalfa honey produced in Colorado will often granulate solid within a few weeks from the time it is extracted; while the white sage honey of southern California will often remain liquid and entirely clear of crystal for two years and often longer, if properly put up. The reason for this difference in the time of granulation will be discussed under the heading of "Types of Honey." Honey from the same species of plant varies somewhat in different localities.

Formerly the general public was suspicious of granulated honey, in the belief that it contained cane sugar, but, fortunately, it is now generally understood that pure honeys will granulate in time, and this crystallization is generally considered as a test of purity. The education of the purchasing public has so far progressed that now some bee-keepers prefer to sell their honey in a solid granulated condition, it being cut up into bricks and wrapped in oil paper.

In bottling honey, or in putting honey from any large receptacle into smaller ones, it is necessary to liquify the entire quantity completely before the operation is begun. This may be done by immersing the receptacle in water which has been heated to 160 degrees to 170 degrees Fahrenheit, and letting it remain until the honey is all liquid and free from crystals. Honey should never be liquified by direct application of heat, and it is extremely important that it should not reach a temperature of more than 160 degrees F. It is well-known to almost all bee-keepers that honey heated to higher temperatures will become darker in color and lose flavor, and, consequently, they are generally very careful on this point. There is, however, a very much more important reason for avoiding high temperature. When honey is heated to 180 degrees Fahrenheit, and more, the higher alcohols which give honey its aroma are driven off, and, more than that, a decomposition of certain of the sugars takes place; this is what gives the darker color to the honey. Of all the various substances used for the adulteration of honey the one most nearly resembling pure honey is inverted sugar, of which the Herzfelt artificial

honey is the best illustration in the detection of odulteration, one of the test for the addition of invert sugar is based on the presence of decomposition products due to heat. These decomposition products in inverted sugar are probably identical with the decomposition products in overheated honey; at any rate, honey which has been heated to more than 180 degrees Fahrenheit for any considerable time, gives the test for invert sugar and would, therefore, be declared to be adulterated if this test were applied by a chemist. A bee-keeper might argue that he is not infringing on the pure food law in overheating his honey, since he added nothing in the way of an adulterant. If, however, he changes the chemical composition of his honey by injudicious treatment, it is no longer pure honey, and he has no right to sell it under that name.

It is very much safer to liquify honey at a temperature of about 140 degrees Fahrenheit, and thus avoid any danger of decomposition. If this lower temperature is used, it is, of course, necessary to keep the honey at this temperature for a considerable time; but the safety of such a proceeding makes the extra time well worth while.

Two or three of the most widely circulated American text books on bee-keeping advocate the drawing off of the liquid portion of granulated honey, particularly in the case of honey which was not thoroughly ripened before it was extracted. The granulated portion is then allowed to liquify and is recommended as a very fine quality of honey. This practice is in no way permissible, as will readily be seen if the composition of honey is studied. Honey is made up of dextrose and levulose in about equal quantities, sucrose, a certain amount of ash, and water. In granulation, the dextrose crystallizes readily and the levulose probably does not granulate at all. If, then, the liquid portion, consisting largely of levulose, sucrose and water, is removed by draining or by pressure, the resulting portion is not honey but dextrose. However fine the flavor of such a compound may be, it is not honey, and cannot truthfully be sold as such.

Since honey separates into its component parts in granulation, it is very necessary that ALL the honey in the receptacle be liquified and thoroughly mixed before any portion is removed from it for bottling or canning. If, for example, honey is in a 60 pound can, and is to be transferred to pound bottles, it is necessary that the entire 60 pounds be liquefied and mixed before any is poured out into bottles, in order that all the bottles may contain honey according to the legal standard. Unless this is done, some of the bottles will contain a high percentage of dextrose and will granulate rapidly; while others will contain a preponderance of levulose and will not granulate for a long time. Unless this mixing is done thoroughly, none of the bottles will contain absolutely pure honey. In order to protect himself, the bee-keeper must be very careful on this point. Some bee-keepers prefer to pour the honey cold into the bottles and heat it afterward before sealing. As a matter of convenience this has many points in its favor, but in view of the separation into component parts which may take place, it is a bad practice. The honey should first be heated and liquefied completely, especially if honeys from several species of flowers are to be blended.

As previously stated, there has existed, and possibly still exists, a popular idea that granulation indicates adulteration by the addition of cane-sugar. This is, of course, untrue, since pure honeys do granulate solid. Many bee-keepers in combating this idea have stated that this very granulation is a test of the purity of the honey. This statement, so frequently made, is equally untrue, since invert sugar—one of the adulterants sometimes used—will also crystallize solid as rapidly as do most honey. Bee-keepers should not make such statements to their customers since it may reflect on the purity of their goods if the truth is found out.

Age seems to affect honey greatly. Repeated granulation and liquefaction as the temperature varies year after year in some way affects the chemical composition of the honey, changing the product so that it may not have the composition that it had at first. Some honey 35 years old, submitted to this department, was found to contain too much sucrose. A sample of the same honey had previously been analyzed by two official chemists and declared to be adulterated; but the history of the sample precluded this possibility. The honey had apparently changed with age in appearance as well as in composition.

Some bee-keepers make a practice

of adding a very small amount of glycerine to the honey to prevent granulation. This should not be done, for it is adulterating the honey. Some have argued that, since glycerine costs so much more than honey, they are not adulterating in that they are not adding something cheaper to the honey to increase their profit. According to pure food laws, however, nothing can be added to honey, unless the addition is specifically stated, and the addition of even a small amount of glycerine is, in the eyes of the law, as great an offense as the addition of glucose.

Heating Honey for the Destruction of the Bacteria of Disease.

The only condition under which honey should be heated to a higher temperature than 160 degrees Fahrenheit is in the case of honey which has been extracted from a colony containing foul brood. In order to kill the bacteria of either of the brood diseases, it is desirable to dilute the honey by adding an equal amount of water and then raise the temperature to the boiling point and keep it there, allowing the mixture to boil vigorously for at least 30 minutes; in order that no risk may be run, it is better to make this one hour. Honey which is so treated is changed chemically and is no longer pure honey, but it makes a good syrup for feeding to bees and is the best way of using honey from an infected source. Too much care cannot be exercised in bringing this to the proper temperature, but it must be remembered that the resulting product is not honey but a syrup, the chemical composition of which is quite unlike that of pure honey.

Packing of Extracted Honey.

If honey tends to granulate rapidly, it will save much trouble in liquefying to put it into the receptacle in which it is to be sold as soon after extraction as possible. There will then be no difficulty from the various ingredients becoming separated. To preserve the delicate aromas it is desirable that honey be sealed as soon as possible.

When honey is put up in less than 3-pound packages it is generally bottled. A bottle makes a much more attractive package than a tin can and shows off the contents. There is no doubt of the fact that honey sells largely on its appearance, and too much care can not be exercised in packing and labeling so as to make the package attractive to the purchaser. In cases where a bee-keeper sells directly to a local trade he may educate his customers to judge his honeys by their flavor, in which event it is immaterial what kind of a package is used, and honey may even be run out from a large can into a vessel furnished by the customer when the honey is delivered. It is too often the case, however, that bee-keepers put up their honey in such poor, unsightly packages that they can get only a low price for their goods.

If honey is put up in more than 3-pound packages, tin cans are generally used, and the most common receptacle is a square can holding 5 gallons (60 pounds). Two of these are usually boxed together for shipment. Square and round cans of various types are often used for smaller quantities. Barrels are preferred by some for large shipments for the baking and confectionery trade, but their use cannot always be advised. Before honey is put into it, a barrel must be thoroughly dry, and **tight when dry,** because of the fact that honey takes up a certain amount of moisture, and if, when the honey is put into it, the barrel is damp, the honey will absorb the moisture, causing the barrel to leak. Barrels also absorb a certain amount of honey. In dry climates, particularly, barrels should be used with caution.

When honey is packed in bottles it is desirable that granulation be retarded, since a partially granulated bottle is not attractive. To aid in the retarding of granulation, the honey should be entirely liquified, thoroughly mixed in a large can and run into the bottle **warm.** The bottle should be as full as possible, and sealed hermetically while still warm. Granulation begins on the edges of the top line of the honey, and spreads rapidly from these points; this is probably because some honey gets upon the sides, and partially dries. It is, therefore, desirable that the honey fill the bottle clear to the cover to prevent this. It must also be free of bubbles.

Bottles may be hermetically sealed by using some style of clamp cover or by sealing a cork with a mixture of beeswax and resin. This mixture may be colored by the addition of a dye. Granulation may be considerably retarded by keeping the honey at a nearly

uniform temperature. This should not be less than 65 degrees Fahrenheit, and is much better at 90 to 100 per cent. Fahrenheit. While the honey is in the hands of the producer or bottler it may be kept liquid for a long time in this way, but of course, when cold it is generally subject to changes of temperature. Honey, either comb or extracted, should never be kept in a cool or damp place.

The Production of "Candied" Honey.

Honeys of the average type are relatively free from non-sugars, such as that made from alfalfa, soon granulate solid and are sometimes sold in bricks. Granulation may be hastened by changes of temperature and by stirring. If it is desired to have a can of honey granulate rapidly, it may be carried from a warm room out doors in winter and back again at intervals of a day or two for a couple of weeks. If this is accompanied with occasional stirring when granulation first begins, the whole can will soon be a solid cake. Honey may also be poured into smaller receptacles, such as waterproof pasteboard carriers or oyster pails, and allowed to crystallize in the package in which it is to be sold. If allowed to granulate solid in a large tin can, the tin may be cut away and the honey cut into bricks with fine wire in the way that prints of butter are sometimes prepared.

A market for "honey-bricks" must generally be built up locally, for as yet the general public has not learned to look for honey in such shape. The cost of the package is less than that of bottles, and the granulated honey is by some considered as superior for table use to liquid honey. Several bee-keepers have used this method with success, and claim that it gives great satisfaction to their customers.

Honey Types.

It is well known that honeys from different plants vary considerably in taste, color, granulation, etc. The taste and color are given to honey by the plants from which the nectar is derived. Granulation may be cosidered as a property of all honeys, or, rather, of the dextrose contained in all of them, and, from a study of the chemical composition of many samples, it seems probable that all honeys would crystallize were it not for the fact that some of them contain an excess of either non-crystallizable levulose or dextrine gums and other non-sugars. The following table will make this point clear:

I. Normal Honey (from nectaries of Flowers.)

1. High Purity (high in sugars, relatively low in dextrin, gums, and other non-sugars.)
   (a) Levulose type, e. g. mangrove, tupelo, sage.
   (b) Average type.
      (a) High in sucrose, e. g. alfalfa.
      (b) Low in sucrose, e. g. buckwheat.
2. Low Purity (relatively high in dextrin, gums and other non-sugars; e. g. basswood, somac, poplar, oak, hickory, apple (most tree honey.)

II. Abnormal Honey (not from nectaries of Flowers.)

(Generally high in dextrin, gums and other non-sugars.)

1. Honey-dew Honey (from aphides and other insects.)
2. Coniferous Honey (plant exudations not from nectaries.)

Honeys containing approximately the same amount of levulose and dextrose, and which are high in sugars (average type) granulate readily. Very few honeys have more dextrose than levulose. If, however, the levulose is considerably greater than the dextrose (Levulose type) or if the non-sugars are relatively high (Low Purity and Abnormal Honeys) granulation is retarded. Some honey-dew granulates rapidly, but no abnormal honeys of that type were included in the samples examined, and consequently they are not included in the table.

The use of the terms high and low purity in this table must not be taken to indicate the comparative values of the various honeys. Low purity honeys which have relatively more dextrin, gums, and other non-sugars, are just as good honeys as those of the high-purity class. Abnormal honeys, however, are less desirable. The presence of the non-sugars in low-purity honeys may be due largely to a slight admixture of honey-dew, since most honeys contain a trace of this. It must be remembered in considering this subject that practically no honey is from a single species of plant, and therefore they will vary considerably according to the other nectars added to them, as well as according to local soil and climatic conditions.

Mr. Hilton: I am sure the Association is under very great obligations for this able paper. The paper is now open for discussion.

Mr. Selser: I think a vote of thanks would be in order to Dr. Phillips for this able paper. I have been quite a frequent visitor in the Chemical Laboratory in the Bureau of Chemistry and have had a number of talks with Dr. Brown, who is the sugar specialist, and he has told me repeatedly that a great deal of the research work in the Department is due to Dr. Phillips. They are about to issue a most magnificent bulletin of the analysis of a great many different kinds of honey; and for that bulletin Dr. Brown tells me that Dr. Phillips is largely responsible. So that this is a work I think we ought to know. This work does not come directly under Dr. Phillips' department, and he is doing this work without remuneration, and unless we give him a vote of thanks, without thanks. I think we should appreciate what Dr. Phillips' efforts have been.

Mr. York: I second the motion.

Mr. Hilton put the motion which was carried by all the members rising.

Mr. Hershisher: I would like to ask one question of Dr. Phillips on a point that was up yesterday, and that was in reference to the ripening of buckwheat honey. I understand from this paper that buckwheat honey is made up almost entirely of dextrose and there is almost an entire absence of sucrose.

Dr. Phillips: Dextrose and levulose.

Mr. Hershisher: That would mean it would granulate very readily?

Dr. Phillips: Not necessarily; it depends on the other ingredients.

Mr. Hershisher: Does the rapid or quick granulation of buckwheat honey give evidence that it is ripe?

Dr. Phillips: Not at all, because green honey will granulate at the bottom, leaving a thin layer on top very frequently; and that is a thing as to which the textbooks have suggested that was the treatment for unripe honeys; and it was that very thing I attempted to condemn, the practice of granulating the bottom and throwing away the liquid on top.

Mr. Moe: Some of us may like to re-read this paper and in order to digest it and get the full significance of it, perhaps Dr. Phillips would explain some of these terms, levulose and sucrose and dextrose.

Dr. Phillips: I use the term sucrose because that is the term that is always used in chemical analysis. That is best represented by the ordinary granulated sugar. I refer to it as cane sugar or sucrose. Dextrose and levulose are two invertent sugars which are found in honey, or which may be produced chemically from sucrose. These two sugars are given their name from the effect that they have on polarised light, dextrose turning the polarized rays to the right and levulose to the left. You find honey is made up of a combination of these two sugars, both of which have a certain effect on polarised light; and in the examination of honey and other sugars the effect of the solution on polarised light has a great deal to do with the analysis.

Mr. Hershisher: A worthy candidate for the office of path master was wont to tell his constituents, to prove his adaptability for the office and to show what qualifications he had, that the first principle of good road making was ditches, and the second principle was ditches, and the third principle was ditches. In other words, if they had good ditches along the sides of the roads they would be sure to have good roads. There is a good deal of hard sense in that. I think that same principle might be applied to putting up and marketing our honey. The first principle is to produce good honey, and the second principle and the third and so on; and if we get those principles well grounded into our methods of producing honey there will not be so very much trouble about the price of it. However, after producing good honey we have got another matter before us, and that is to put it up in good marketable shape and so that it will keep attractive for some length of time. And I think Dr. Phillips has told how this could be done in his very able paper and I hope the members of the Association will profit by it. His directions for putting up honey are almost identical with the methods I have used and I will take a moment to show you a few samples I brought with me (shows samples). The honey is put up in this way by heating the honey up to about 125 or 130 degrees, getting it so that it will run nice and then drawing it off into receptacles, and then placing it in a water bath warm

enough so that I could stand my hand in it—about 140 degrees; that causes all the bubbles of air to rise to the top, and while it is in this hot condition I seal it as well as possible. There is a cork lined cap in the upper part and the screw is screwed down tight on to that cap. The jelly glass is sealed by taking a disk of paraffine paper laid over the top of the jelly glass and the tin cover forced down over that. If every one of you bee-keepers will try to put up your honey and sell it locally and get better prices for it it will stimulate the market all round and the gentlemen engaged in packing largely will have the market stimulated, and they will get as good prices and get all the business they can handle just the same.

Mr. Root: I understand Mr. Hershisher to say he got the water hot enough to put his hand into it. Did he ever take a thermometer and try it? If he put it into water at 140 degrees I think he would draw it out with the skin off.

Mr. Holterman: I would like to say a few words from the standpoint of a Canadian. I know it is quite customary to laud a man under such circumstances as this, even if we don't quite agree with what he says. I am not one of those, but I would like to say that I consider that address which Dr. Phillips has given shows very careful preparation and excellent work, and is on the line that bee-keepers need very much at the present time. I hope that that address will be distributed very widely. I would like very much if it could be arranged that the members of the Ontario Bee-Keepers' Association at least would be able to get a copy of that address.

He touched the question of pollen in honey. I believe that is an item which deserves a very great deal of consideration. That opens up another line of investigation. I asked Dr. Phillips as to that and he said it had been found that in these 200 samples there was a great variation of pollen in the honey. I believe with seasons and sources the amount of pollen varies very much. Where the flow is poor and where the bees have to visit a great many flowers in order to get a load the tendency may be that there may be a great deal more pollen in that honey; and in our northern districts where the bees are confined a long time through the winter it may have a very important bearing on the way in which bees winter.

I must congratulate you upon having at Washington a gentleman who is able to give you the address he has given this morning.

Mr. York: Some members of the Association think they do not get anything out of it and don't feel like paying a dollar, but this is only one of the things they get in the Annual Report. When you first began bottling honey and didn't know much about it, how much would such a paper be worth to you? This question I asked of a gentleman here and he said, Two or three hundred dollars. Of course it would. I think it would to me in that case. If there is anything I ought to know a little about, it is bottling honey. It seems to me we ought to emphasize some of these things among the bee-keepers because it is simply a cheap way to get information to join the National Bee-Keepers' Association and read these things.

Dr. Phillips said in bottling honey to put it in the bottles when it was warm. We always bottled it hot and sealed it immediately. We thought for a long time that prevented granulation. We heated the bottles about 160 degrees; we immediately had some one follow the filler with a rubbing ring and top; and we have had very little trouble with granulation.

Mr. Selser: In regard to heating honey, it is not so much bringing the honey to a certain temperature as it is not to let it stay very long. A very valuable thing I found in my work for preserving the taste, flavor and aroma of honey was after it was bottled hot and then sealed doubly to reduce the temperature immediately by an ice bath. Those ladies who preserve their fruits would say by putting the bottles heated to 160 Fahrenheit into ice water it would crack every jar. It will not. There is a great thing in regard to the temperature of that ice bath and the temperature of the honey. There is a ratio between the two.

Prof. Surface: I would like to ask Selser if the cans are only partly submerged or completely so.

Mr. Selser: I use crates that will hold two dozen each of honey with slats in the bottom. It has got to be done in a wholesale way. These crates are submerged in very large tanks, and this ice is being put in every few moments, in 1500 pound

cakes, in the water. These crates with two dozen each of the large size are put in at the end where it is a little bit the coolest, and the ice remains at the other end. As the new crates are put in the old crates are slid down so that the temperature is reduced somewhat gradually in that way, and wherever you wished to cut it, heating it is submerged up to the top of the neck of the bottle. The water does not go over the cork, but over the honey.

Prof. Surface: Doesn't it appear if they are completely submerged there would be even less danger of splitting?

Mr. Selser: I am a little afraid of some chemical action that might arise from the wax I use. That was something that cost me in the neighborhood of a thousand dollars, ad it is a secret; it is not made in the ordinary way.

Prof. Surface: We know the well known principles of cutting glass by heat and cold; or for cutting the neck of a bottle by wrapping a thread saturated with alcohol around the neck wherever you wished to cut it, heating it and plunging it into cold water, and that line is the line of cutting.

Mr. Holterman: What is the size of the largest bottle you treat in that way?

Mr. Selser: The largest bottle holds short of a pound. I might say we always have some amount of help in this room. One stands at one end and draws off the water as the ice melts, so the water only gets up as high on the bottle as the honey.

Mr. France: Supposing that my own honey that I am selling upon the market becomes exhausted and the market continues, and I want to buy honey from some one else, how can I label that under the Pure Food Law? As I understand it, I cannot use my own label as if the honey were mine without giving credit to the outside source for it. I would be pleased if Dr. Phillips would enlighten us on that point.

Dr. Phillips: I am sorry I cannot give definite information on that point simply because the Bureau of Chemistry and the Pure Food officials have not yet given a decision on that point. They are unable to give an authoritative opinion until the case comes up. They now have for consideration about 50 honey cases. The thing has never been tested. The words "put up by" have been suggested, but there is some objections to that among the officials. What the final ruling will be we cannot tell till a test case is decided.

Mr. France: So far would it be considered or approved of if instead of the words "put up by" the word "Distributors" was used, or "Bottled by?"

Dr. Phillips: Yes, they have decided those are all right.

Mr. France: The intent of the Pure Food law as I understand it is simply to convey to the consumer the true merits of the food they are getting.

The President: The next paper, according to the program, is by Mr. W. Z. Hutchinson, of Flint, Michigan, on "Method of Producing Honey in Raspberry Districts."

Mr. Hutchinson: Somebody has got things mixed. Somebody wrote to me and asked me to talk about Out Apiaries. I didn't talk about that only in an incidental way.

BEE-KEEPING AS A BUSINESS.

I have been asked to talk about out-apiaries. I have not yet had sufficient experience with out-apiaries to give much of a talk on that subject, so I will take a broader subject, that of "Bee-Keeping as a Business."

The first step is that of learning the business. Most of the failures in bee-keeping as a business is in launching out too widely with only a narrow experience. As to how that experience shall be gained is another question, but it must first be obtained, in some way, just as surely as the physician, lawyer or architect must learn their professions before starting in business. The quickest and most satisfactory method is that of working with some experienced, successful specialist; but it is a noteworthy fact that most of our specialists have begun in a small way, and slowly and laboriously, but perhaps pleasantly, climbed up the ladder without any boosts except those gathered from books, journals and visits to the apiaries of other men. A man starts with a few colonies. The bees and his knowledge gradually increases until he has perhaps 75 or 100 colonies. There he stops. He knows the business of managing an apiary from A to Z, but he lacks the nerve, or confidence in himself, or in the business, to branch out still further; to drop all other entangling alliances, and make a sole business of bee-keeping. The special-

ist in any line can always out do the man of many trades. This is a self-evident proposition. The man who succeeds is the one who concentrates his energies, his capital and his time.

Not every man is situated properly for making a sole business of bee-keeping; and it may not be desirable nor advisable that he change the conditions, even if it were possible. These are some of the points that each man must decide for himself. One thing is certain: No man ought to ever attempt bee-keeping as a sole business in a poor locality. The foundation and corner stone of bee-keeping as a business is a good location. Without it, all else is in vain. With it, many other things may be neglected. The man in a good location will always wear the robes of purple.

Having the location, the next step is to stock it with the best strain of bees. Every bee-keeper of experience knows that there is just as much difference in bees as in other kinds of stock. There are scrub bees just as there are scrub poultry, cattle and sheep. In our Northern Michigan apiaries, we had, in one apiary, 50 colonies of a distinct strain that increased to 104 colonies, and stored 2,700 pounds of surplus, while 60 colonies of ordinary bees in the same apiary increased to only 80 colonies and stored about 2,000 pounds of surplus. These bees were all in the same yard the previous season, treated the same, wintered in the same cellar, and treated the same in the spring. The only difference was in the strain of bees. Now, it requires no more hives, combs, nor labor to care for thorough-bred, first class bees than it does to care for scrubs. It costs no more to raise such bees, for the bees to rear the young bees, than it does to rear scrub stock. A man in the bee business, as a business, ought to leave no stone unturned in securing the best possible stock. Then let him keep constantly weeding out those colonies that show any undesirable traits, and breed from those queens whose colonies show the most desirable traits. Don't keep introducing new and uncertain blood, but go on selecting, selecting, selecting, year after year.

Having the location, and the most desirable stock, the next vital point is that of keeping bees in sufficient numbers. I never knew a man to become wealthy or even gain a competency, from the keeping of a few bees. There must be a sufficient number so that, when there comes a good year, honey may be secured ton upon ton. Just how many colonies can be profitably kept in one location may never be decided positively. Locations, seasons, methods and men all differ. I am becoming satisfied, however, that many of us might profitably keep a great many more bees in one location than we have been keeping. It might be necessary to feed in both the spring and the fall, but in the great, rushing, booming harvest time, I doubt if a really good location is very often overstocked. One year ago, in one location, we had 150 colonies, and believed that the number ought not to have been increased, however, the next season increased to 200 colonies, and then 10 colonies. It was the cream of an apiary moved from Flint to Northern Michigan, stored 1,200 pounds of surplus, with the average of all our apiaries was only about 50 pounds. I am satisfied that it is more in the condition of the colonies at the time of the harvest than it is in the number of colonies working in the field. But before starting an out apiary let a man consider well, and see what may be done in the way of feeding, and otherwise caring for the home apiary. Let him know beyond a **doubt** that he has more bees at home than can be profitably kept in that location. Let him be just as sure as he **can** be that it will be more profitable to move some of them to another field. Let him not forget that just as soon as he starts an out apiary, he has taken up a new problem in bee culture. Previous knowledge of bee-keeping will help him, but there will be many new elements, many new factors. How often, in reading the bee journals since I began operating out yards, do I come across some method, or plan, or pieces of advice that causes me to exclaim: "That is all right for a home apiary, but of no earthly use in an out yard." No sort of fussing can be tolerated in an out apiary. There must be rigid system. There must be simplicity. And the methods must be adapted to the work that is to be accomplished. Details would be out of place here. In fact, a plan or system adapted to one location, or to one man, would be entirely out of place in another state under the management of some other bee-keeper. It is wonderful to me, as I look over the different systems of different men who may not even be

widely scattered, to see how different are their methods, and yet how **appropriate** they are to the conditions, to the locations and the men who are accomplishing such results. Know what you wish to accomplish. Study your location, your object, and yourself, and then adopt such hives, appliances and methods as will best allow you to accomplish your end. Extracted honey may be the most profitable for one man to produce; comb honey for another. Comb honey may be the kind of honey to produce at the greatest profit in one State. In another State the conditions may be more favorable for extracted honey production. Then the markets have a bearing.

But if a man will use the same sort of common sense, or business sense, in engaging in bee-keeping as a specialty, that he would use in some other business, he may look for abundant success. Stop "fussing" with bees. Stop belittling the pursuit. Hold up your head. Put your whole energy, thought, and capital, and labor into the business, just as though you were running a 200-acre farm. Magnify your calling. Be proud of it. **Make** it a success.

Mr. Hilton: While I have the matter in mind, Prof. Surface has very kindly offered to give us a tour of this magnificent building and I feel we would all be very glad to be shown through the building, and he suggests we return to this hall as soon as we can after our dinner is over, and he will then immediately take us through.

Mr. Moe: I move that we adjourn now and devote the half hour before dinner to seeing the building.

Mr. Hutchinson: I second the motion.

The Vice President put the motion, which, on a vote having been taken, was declared carried.

The Convention adjourned to meet at one o'clock.

Prof. Surface conducted the members through the building previous to the noon hour and afterwards through his kindness were received by Governor Stuart in his reception chamber, where he welcomed the members to Harrisburg and said that he would be pleased to do anything he could to aid the interests of the industry in the State. A suitable reply was made by Vice President Hilton, after which the Governor shook hands with each of the members in turn.

FIFTH SESSION. (Thursday afternoon.)

At 1:45 P. M. Vice President Hilton called the Convention to order and said: "Prof Surface desires to bring before the convention the question as to whether we will now take fifteen or twenty minutes to go up to the Dome and into the other end of the Capitol, or shall we conclude our business and then those who care to go, go at that time?"

Mr. Hutchinson moved, seconded by Mr. Moe, that the business of the Convention be first concluded. Carried.

Mr. Hilton called for reports of Committees.

Mr. Hutchinson presented the report of the Committee on Exhibits, as follows:

COMMITTEE ON EXHIBITS.

We find in adjoining room the following exhibits:

Cleaver & Green of Troy, Pa., agents of G. B. Lewis Co., the Hershisher bottom boards, feeders, and wax press. Lewis foundation fasteners, feeders, Bingham & Danzenbaker, smokers. Lewis hives, sections, Dadant foundation, and various other articles. Carl Lidloff with Simplex hives.

A. I. Root Co. with Danzenbaker hives, 8 fr. Langstroth hives, 10 fr. chaff hives, gasoline engine attached to reversible extractor, Hubbard section press, Daisy fnd fastener, Root queen rearing outfit, Root section press, Foundation fastener, Novice & Bingham uncapping knives, Root & Danzenbaker, smokers, veils, gloves, books; Hatch-Root wax press, mailing cages, foundation, etc.

Wm. Kernan of Dushore, Pa., sections of raspberry honey.

W. Z. HUTCHINSON,
O. L. HERSHISHER,
M. E. DARBY.

On motion of Mr. France, seconded by Mr. Moe, the report was adopted and the Committee discharged.

Mr. France: Mr. Vice President, it will be in order some time before the end of this closing session for your Committee, appointed a year ago, to report upon the matter of securing a lower or, at least, a more uniform freight rate upon bees, honey and bees' wax for all the States. There was, about a year ago, to our surprise a seemingly great injustice done to our members in freight rates as com-

pared with the freight rates on other commodities. As an illustration of that, one of our members in the Western States was shipping a car-load of bees from Texas to one of the Western States, and attached to the same train was a car-load of cattle going to the same destination, there being a man in charge of the cattle to look after them and a man in charge of the bees to look after them. The bee-keeper had to pay full fare home, whereas the stock-man had a pass, and the cattle went for one third the rate that the bees did. This Committee found they were up against a big problem. As soon as this Committee got to work they went at it vigorously and systematically, and they found that there was a sentiment over the States demanding legislation reducing passenger fares to two cents a mile. In many places that legislation was successful and the two cent rate secured. The result was we had little or no influence before the Railroad Commission with those conditions facing us. If the passenger fare must be cut down, then the freight traffic rate must go up. The railways said, our earnings must be what they have been. In the East at the time this Committee was to meet the Railroad Commission in New York City, Mr. Muth of Cincinnati, who was on that Committee, was ready to go at a moment's notice; and I, being Chairman of the Committee, and your Honor, a little inclined to be economical and to hold onto the pennies of this Association, till I can see clearly, found we had a member of the National Association who lived close to where this Railroad Commission was to hold its meeting, who would gladly go and do preliminary work, and if need be we would send our committee men at once. Consequently Mr. Selser, from your State, went before that Commission and secured very favorable returns without expense to the National Association. We were encouraged. The application still lays upon their table for future consideration. But unfortunately, when the other classification committees were to meet, before that time had transpired, a joint session on freight classifications had unitedly advanced freights, and we had no chance to do anything. In my own State, freight has gone up 82 per cent; and when we talk about reducing them we are laughed at. Let us hope that this is not to continue. And unless this Association discharges this Committee, as Chairman of the same, I feel it is my duty to watch the chance and when the door opens we will go to work again. That is, in short, what we have accomplished. That is, we have simply made an impression before the Freight Classification Committee. Mr. Holekamp, located at St. Louis, worked faithfully with the western classification, and we have left a good impression, and we are in hopes that lower freight rates some day will be secured. On the other hand, by investigation, we found that there was a cause for the high freights on the honey products because such a large percentage of it was not put up in a good shipping condition, for which we as producers are to blame. The shrinkage and the poor packages have much to do with the high classification; and one of the points on which this Committee was going to approach the Classification Committee on Freights was to specify how comb and extracted honey should be put up to secure certain classifications which would make it incumbent on the part of the producers to put their product up in much better packages than they formerly had been doing. We could not ask the Railroad Commission to take all the risks with some classes of shipments that had been originally made. I see the one who represented us in the Eastern Classification is here, and I would like Mr. Selser to explain the situation on behalf of our freight interests in the East.

Mr. Selser: I did not represent the National through the kindness of Mr. France, and it was a very wise thing we went before the Eastern Classification Committee at the time we did. Those of you who have met any of the members know something of what constitutes this Classification Committee. It is two from every railroad running over the lines, I believe, east of the Mississippi River. There were some sixty-five men, and I never went before a body of men who seemed so anxious to help us, who were so free from any petty spirit, and who seemed to be of such a high character, and men whom you were pleased to associate with and address, as that body of men. They paid me the kindest deference. As I noticed in the ante-room there were 120 odd different manufacturing and business houses at the same time,

waiting to be heard before this Committee, and when you went in you had your number, and everything was in such beautiful shape that they knew all about you, so that you did not have to make any introduction, but simply proceed with your statement and request. As I say, before I went in there were 120 and some odd business men from all over the East and a number said to me if they could only get the Classification Committee not to increase the classification they would be satisfied. It was about the time that this legislation was being contemplated, and the railroad companies were going to raise the classification all along the line, and these men were making vigorous protests for reduction so that they would not turn around and raise it; and when I found that was the idea I realized we could not get our classification changed. I made a very strong fight before them for some twenty minutes, and they did not pronounce a decision till two months afterwards, and then it was that there would be no change in the classification. I was delighted with that, but I thought the Association should know that we have escaped a great danger, although some of these trunk lines have increased our rate 50 to 60 per cent.

The Vice President called for the report of the Committee on Resolutions.

The Chairman of the Committee reported as follows:

COMMITTEE ON RESOLUTIONS.

Resolved, That the thanks of this Association expressed in writing by our Secretary to Hon. N. C. Schaffer, Superintendent of Public Instruction of Pennsylvania, for generously granting us the use of rooms in his Department for meetings and exhibits.

Resolved, That we express our appreciation of the services of Pres. Aspinwall, Vice Pres. Hilton and Manager France for their efficient and successful services.

Resolved, That we express our high appreciation to Prof. Surface for his untiring efforts in helping to make this meeting a success.

Resolved, That it is the sense of this Convention that in the future the Board of Directors should give the General Manager more assistance by definite active co-operation.

Resolved, That it is the desire of the members of the National Bee-Keeper's Association to express its appreciation of the useful work in apiculture that is being done by the United States Government through the section of Apiculture of the Bureau of Entomology, Washington, D. C., and that we also desire to ask for a generous provision for continuance of apicultural investigations and publications.

Be it further Resolved, That we express our special thanks to Dr. L. O. Howard, Chief of Bureau of Entomology, for his broad minded attitude and encouragement of investigations and experiments in bee-keeping.

H. W. BENDER,
PROF. H. A. SURFACE,
WM. A. SELSER.
Committee.

On motion of Mr. Fox, seconded by Mr. Moe, the report as read was adopted.

Mr. Hilton: Is there anything else of a general character to come before this Body?

Mr. Pressler: What is the present rate for bees shipped locally, less than carload lots, and carload lots in the Eastern Division?

Mr. Selser: Double first class merchandise. I shipped a carload of bees in my capacity of representative about four weeks ago; they gave me a special rate from some part of New York down to New Jersey, on the rate of double first class merchandise, but I didn't want a full car, and I didn't want them unpacked as they went through New York City. I figured out that the rate would be $65 for that one shipment, less than a carload; and instead of doing that I chartered the whole car through and they said I could put in what I pleased for $35.

Mr. Pressler: What I mean is, what is the printed schedule for trunk lines in all parts of the Eastern District, and are they rated as first class or second class, or double first class or three times first class?

Mr. Selser: Double first class merchandise.

Mr. Pressler: That is what I always contended for and they always charged me three times first class.

Mr. Carr: The classification should be, according to Interstate Commerce Law, posted in every station. In shipping any commodity in carloads or less than carloads, it is an instruction to agents to ship which ever way will be

the cheaper. It is no secret, as Mr. Selser thinks, and that he has gotten in on the ground floor; that is accessible to the shipping public.

Mr. Selser: I would like to say if you have less than a car load of bees to ship at any point it is always best to charter a car in all cases.

Mr. Hilton: If there is nothing else of a general character we will resume the matter of the questions.

QUESTION BOX.

Mr. France: The balance of the questions which are here are composed of those where it was requested that some particular individual answer them, which we will take up first, and then other questions with no names specified, which we will take up later.

Some of the questions have come to me with this statement: "That question to me, if answered by that person, is worth my dues to the Association for years." Consequently we will get the benefit of it and they will, when they read the report.

Question—How to prevent absconding swarms in an out-apiary run for comb honey when the queens are not clipped. Miss Matilde Chandler, of Cassville, Wis.

Reply by R. L. Taylor, of Mich.—The question seems to imply that the clipping of queens prevents the absconding of swarms, which is only true to a certain degree. The clipped queen out with a swarm often fails to find her way back to her own hive or if she does, after the effort to swarm has been made, two or three times, she is likely to be killed by her own bees, in either of which case a swarm issues attended by a virgin queen and of course absconds. The queen trap properly used has an advantage over the queen clipping in that it prevents absconding, while clipping does not. The trap has the further advantage that when a visit is made by the apiarist he can easily tell which colonies have swarmed, while with clipped queens there is little to indicate the fact. There are other evils which these two plans share about equally; such as the uniting of swarms that issue about the same time and going together in the hive of a single colony; perhaps a stranger to all of them. In short the trap is to be preferred to clipping, and will answer well when the apiary contains but few colonies; but when the colonies are numerous it will pay to hire a capable person to keep them in order during swarming season.

Question: Does famine originate or cause foul brood? A. W. Tilson, Cal. Replied by R. L. Taylor, of Mich.: No. It is caused by foul brood bacteria alone.

By N. E. France of Wis.: No. But poor seasons are favorable for robbing and spread of disease among bees.

Letter from A. C. Allen of Wis.: This disease among my bees is a fright. It is as fatal as foul brood. No ropiness or smell, but resembles foul brood to look at. A year ago I had 148 colonies, now 78. Loss 70.

A neighbor had 108 and lost 70. I hope you and Dr. Phillips can decide what it is and remedy.

Mr. France: I was called to this man's apiary three times, he insisting that the bees were infected with American Foul Brood, but in my judgment I thought not. One time I went to the yard and he had found it in but one hive and he was so sure it was that, and wanted me to see it in its true condition, and avoid robbing he had dug in upon the hillside and had buried the hive, bees and all, till I could come. It had been there some little time. Now, he said, we will go and dig it up and you can see the remains. We took the sand off, and a swarm of bees, like as if they were coming out of their winter quarters, were there fighting mad and ready to get out. I said, "There is no foul brood; there is what is commonly known over some of the States as pickled brood, but it is starvation more than anything else; feed the poor little fellows." And he did and got a super and a half of comb honey off the dead, buried bees. But there is a condition in that yard now I cannot account for or decide what it is.

Question—Should bee-keeping be entered into in partnership? A. L. Aspinwall.

Reply by R. L. Taylor—I only know no reason such should not be formed when circumstances favor it.

Question—Is European foul brood (black brood) in Michigan under control?

Reply by R. L. Taylor—I only know that since I became Foul Brood Inspector of Michigan I have had no call for my services on account of it.

Three questions by R. Ross, Montreal, Canada.

(1) Is W. H. Laws' methods of fertilizing queens be successful? Describe.

(2) After the fertile queen is removed from a nucleus, does the presence of eggs in the combs render liable to kill virgin queens placed therein?

(3) What is best receipt for label paste, and that will keep?

Replied by W. H. Laws, of Beeville, Texas—W. H. Laws' method of fertilizing queens is successful.

Small boxes with hinged cover holding one comb of honey with virgin queen and a teacupful of bees caged 24 hours and set on a location 1-4 mile from the Apiary at about sundown; bees stay out, and in a few days young queen will be laying. If desired on removal of queen a cell can be given and one or two more queens can be mated with the same bees. The original plan was to use these mating boxes only once, renewing bees with virgin for each mating. Plenty of work by this plan, so much so that I prefer large three frame permanent nuclei, and can always have queens in plenty. These little boxes can be used to great advantage, however, in caring for an unusual large order, or to care for an unusual number of cells when all other nuclei have been supplied.

The presence of eggs or larvae in cells after first mating makes little difference where new bees are used with each virgin for mating. Otherwise the usual length of time must be had before introduction of cell.

We make paste to stick labels on tin as follows: Common wheat flour mixed with COLD water then cooked to a paste will hold labels on tin. If mixed with warm or hot water before cooking, the labels will peel off when dry. This formula is so cheap that we can afford to make new paste with each use of it.

W. H. LAWS, Beeville, Texas.

Mr. France: Part of the trouble with any of our ordinary pastes, with tin, is the oil that is upon the tin. Get something that will take that off. Use a little soda or vinegar. Wet the tin with that and wipe it off and any paste will stick. You have got rid of the oil and that is all that is necessary.

Mr. Hershisher: I don't care to do any advertising, but I might say use Sapolio.

Mr. Hershisher: In reference to sticking labels on cans and glass, I use LePage's glue, and that is another advertisement. The way I use it is this, I warm it up well and dilute it a little with water and take a plain surface of glass or smooth board and spread the labels out upon it, and with a brush spread the glue over each one of them. Then take up an equal number of labels and stick them to the first lot, and that will keep them from drying out too fast. You can prepare a couple of dozen in that way, and you can then pull them apart quite rapidly.

Question—How to keep the brood warm in cold weather in spring.—J. Poindexter.

Replied by Miss Chandler of Wis.—The way I do is to leave the winter packing on until time to put on sections. I've had little experience with unprotected hives. When I moved my bees to present location, I took off their winter packing early in spring, (April 5). The colonies were less strong than usual att the beginning of honey flow. It was due to want of spring protection. Last February I visited my out-apiary. I found three hives tipped overe and everything come apart. I straightened them up, wrapped the weakest colonies in heavy paper, and left the strong ones unprotected. Next fruit bloom the protected hives had strong colonies, while a protector without hunting up and were now weak with little brood. I find paper closely wrapped about the hives better than sawdust packing for weak colonies.

Question by A. C. Allen, of Wis.—Is the plan of re-queening by inserting a ripe or nearly ripe queen cell in a protector without hunting up and killing old queen reliable? What time of year does this work best?

Mr. Pratt: On the question of re-queening, there are a hundred different ideas. In the first place I don't believe a cell protector is needed. Mr. Doolittle claims it is. Then he claims that the young queens will succeed the old one. I claim it will not. It will ball the young queen at the time she is ready to mate. Other men have different views on it. If you have got a cell from the combs, use a cell protector, but in my view, it is folly to use a cell protector.

Mr. France: The same party asks one other question: "Will placing moth balls in stocks of unoccupied combs which may remain idle one or

two seasons be affected in keeping, and by the moth miller? Also, would bees accept those combs after having combs once well aired, and would honey placed in them afterwards be impaired by the odor of the moth ball?"

N. E. France: Before you discuss that, you can see a tendency, which I find too common, to save old combs and honey from the same, where there is disease or the suspicion of it, which may be to the sorrow of the bee-keeper, and which, in my opinion, is not desirable. It is false economy. I believe we can to some extent save infected combs by certain kinds of treatment, but with the average bee-keeper, it would not be thoroughly enough done, and it would be a failure and the system would be condemned. I was pleased to be at one of the New York Annual Conventions when Mr. Alexander was there and heard him give his description of the formaldehide treatment for infected combs. If any of us have diseased combs and we give them the care and treatment he gave those no live germ could exist. On the other hand I have seen places where a box was used—well, it would hold shell corn—and that was used to fumigate combs with formaldehide and failed. Sometimes I tried this experiment, after trying to influence the man that he could not afford to save those combs, and he insisting upon the combs as being valuable, although there was disease in them. I said, "If there are cells capped over, I question, under ordinary conditions, that formaldehide gas will penetrate through the wax upon those cappings sufficiently to destroy the germs underneath;" and in the middle of that box I placed a piece of brood almost at the point of hatching with live bees underneath. The entire box was fumigated and aired, and this little piece of brood was taken out with hatching brood from a healthy colony that was put in there, and nearly all of those bees under the cappings had life sufficient when I pulled the capping off that they could crawl of their own accord. I said. "If it has not killed those bees it has not killed the germs of the disease." Neither has it killed germs of disease where there was honey stored in on top of the disease that was in there before the honey was put in. The combs were put back into clean hives, the bees shaken upon them two days before I started for our National Convention trip to California, and the next day after my return from California, I hastened back into the other part of the state and found those same combs had brood and had foul brood in them, too.

Mr. Darby: I find too often that people are inclined to want to save honey from diseased colonies, and they are inclined to use those cheaper disinfectants. I have several times this season found where they tried to protect and save honey from diseased colonies just by these moth balls in some instances. They had taken some nice honey from the super, and they thought that surely would be all right if disinfected by those moth balls. The result was the honey was rendered unfit for use.

Mr. France: This last gentleman upon the floor is the Inspector for foul brood in Missouri.

Mr. France: It has been my good fortune to meet the members of our Association in the different States with pleasure. At times there has been a little ripple, which quiets down, but in connection with the occasion of last evening, which was, as it were, like a shot of surprise to me, from which I have not fully recovered, I would like a moment to give the last two verses of a song which I have hummed on the train over and over again, that is dear to me.

CONVENTION SONG.

As year after year in convention we meet,
And many new faces behold,
I miss the warm hand and the warmer heart beat,
Of some who were with us of old.
But time nor its changes can never efface
From memory's tablet so clear,
The sweet recollections, the hearty embrace,
Of brothers who cannot be here.

CHORUS.

'Tis friendship that binds,
As brothers today,
We're kindred by labor—our hearts and our minds
Shall echo the greetings we say.

But old friends and new ones find ever a place
In hearts that are tender and true.
If a tear be discovered for some absent face,
I think not less dearly of you.
Then while in reunion we meet as of yore,
May harmony gladden our hall;
And when to our loved ones we hasten once more,
May memories sweet cling to us all.

CHORUS.

'Tis friendship, sweet friendship,
'Tis friendship that binds—
As brothers we meet here today.
We're kindred by labor—
Our hearts and our minds
Shall echo the greetings we say.

(Applause.)

Mr. Hilton: What is the pleasure of the Convention? We seem to have exhausted our program practically. If any member has anything to offer we would be very glad to hear it.

Prof. Surface: We have in the room Mr. A. I. Young, of Littletown, who was stung a year ago. He could in five minutes' time give us his own personal experience of the bee sting cure for rheumatism.

Mr. Young: Gentlemen, I was thrown out of a wagon head first, and I guess all that saved me was a fur cap and a big storm coat that I had; my shoulder was dislocated, and the doctor afterwards said I was full of rheumatism. He said it was a lucky fall I had. He said if I hadn't had that fall, the chances are, I was so full of rheumatism, that it would have gone to my heart, and I wouldn't know what struck me. After I commenced to get better the rheumatism showed itself, and at one time I hadn't power enough to move my hand but a short distance; I could not wind even the stem of my watch, but now you see when I came in I could shake hands with the Professor. It is some time since I was stung by the bees, on account of the fact that the weather has been almost too hot. He sent me word he would have some bees here, and I proposed starting in again. I can feel the effects of it in my blood, and that is where I think rheumatism originates. I have had as many as ten or fifteen stings at one time. The first time I saw it I thought it was plain common sense that the acid of the bee counteracted the acid in the blood which caused the rheumatism. I know one old gentleman in our town who had rheumatism so bad that he could hardly move, and he was stung by a lot of bees and he never had rheumatism afterwards. I think by referring to the books you will find that acid from ants is even better than from the bee.

Mr. Phillips: How long should diseased honey be boiled and at what temperature? The question was asked whether it was known definitely that a certain amount of boiling would cure foul brood and that it could safely be given back to the bees.

Mr. France: If I had it I would bury it before I tried the experiment, from the fact that I have witnessed a good many cases where people said they were boiling honey and they were putting the honey in some receptacle and placing it in boiling water. The water was boiling but the honey wasn't nearly warm enough to cure the disease. I believe experiments have shown that where honey was actually boiled it takes a long time. I question if there has been a record of less than 25 to 30 minutes good boiling. I had a yard in which there were 208 colonies and I shook them back into the same hives and they remained there without anything, not even comb foundation. We caged them in, extracted the combs, put that honey to boil, then rendered out the wax, made that into comb foundation, and in a few days we had the bees back in the same hives on the same foundation made from infected combs, and we fed them the boiled honey, but that honey was boiling pretty near all afternoon. Those 208 colonies have never had foul brood in the hive since, and that is eleven years ago this spring.

Mr. Kernan: Did you change the bees twice?

Mr. France: They were in these hives while we were melting the combs and getting it back in foundation. It was made on the Given Press. The frames from an infected hive can be used again, but I should want to put them into water that was really boiling. Boiling will cure disease, but we must not go halves at it.

Mr. Hershisher: I either read or heard Mr. Doolittle describe the method of cooking honey to destroy the germs of foul brood. He had a colony that was infected, and he took the honey and on the kitchen stove, and went out to do something outside, and forgot the honey, and when he came back it had started to boil and ran all over the kitchen floor. He tried to gather it up, but before he could do so, the bees from the apiary were in there, and he expected to have all his colonies infected, but none of them got the disease.

Mr. Darby, of Missouri: These reports go into the hands of a great many small bee-keepers, who are not careful enough in their experiments.

If you tell them they can save this honey by boiling they are liable to put it on and burn it and then feed it to the bees. I found one man attempting to save his honey and feeding it back to his bees after treating them for foul brood. The twenty colonies treated in this way were all dead in a month.

Mr. Hilton: Manager France has a number of questions which were sent for miscellaneous answers. I hope someone will answer them as they are read.

Mr. France: There is a series of them from John L. Sims, of Michigan. The first question is: "Is there anything which will make easy work of cleaning off beeswax from dishes?"

Mr. Hilton: Our President says have the dishes warm and use common newspaper to wipe it off and it will come off very easily.

Mr. Pressler: Use a rag soaked with denatured alcohol afterwards.

Mr. France: Would it not be a good plan to suggest some way to keep it from sticking there in the first place?

Question—Why do bees that have swarmed and hived 31 days, swarm out again without a sign of a queen cell, leaving plenty of brood?

Mr. J. H. Miller: That question comes from myself. I experienced that this last summer. I had a swarm of bees on May 14th. The 31st day after hiving, that swarm had clustered as usual, and I made an examination of the hive and found neither a virgin queen or any sign at all of a queen cell. They were common Italians. I think they had plenty of ventilation.

Mr. Moe: They frequently swarm for lack of ventilation. I had a case of a swarm that clustered nicely on the limb of a tree, and after an examination of the hive I got them down and returned them to the hive, and in a few days I gave them more room, I gave them about 32 sections, I think, and they partly filled those sections and all was quiet after that.

Mr. Hilton: Was the brood nest well filled with honey when they came out?

Mr. Miller: Yes.

Mr. Hilton Don't you think the solution would be that they swarmed out for lack of room?

Mr. Miller: It might be.

Mr. Keenan: It might be possible another small swarm went in there that he didn't notice.

Mr. Moe: If they were blacks I think that would be an unusual thing. But with Italians, especially those around in the yard, and with fine weather and with them in swarming condition, that would not be an unusual thing, especially if he had the hive located in a warm place and not sufficient ventilation.

Question by Joseph Mason of Illinois. How to prevent bees making sweaty or watery looking comb honey.

Mr. Cook: Use black bees.

Mr. Hutchinson: Keep the honey in a dry, warm place after it is finished up. They don't make it in the first place that way.

Mr. Klees: Does not honey get that appearance when it is kept in a damp, cool place?

Mr. Hilton: Invariably. I think the question is misleading.

Mr. Darby: There are places where you will find watery honey in the hive in the warmest of weather.

Mr. Fuller: While some races of bees are more apt to place cappings on the surface of the honey and produce watery looking sections there are other races that will leave an air space between the cappings and the honey. I would suggest changing the race of bees.

"How will I prevent the bees from putting burr combs between the top frames and the super?" (Not answered.)

Question by John Cline, of Wis.—If by uncapping drone brood and putting it back in the hive will it be likely to cause foul brood or other diseases?

Mr. France: That question is asked by John Cline, of Darlington, Wisconsin. I will say no.

Prof. Surface: It ought to be put down in the records that all diseases come from diseased germs. There is no such thing as spontaneous origin of disease or no such thing as disease being produced by conditions; it may be augmented by conditions.

Question by A. W. Tilson of Cal.—Does famine originate foul brood?

Prof. Surface: That comes under the same heading.

Mr. France: I answered him the same thing. I replied you must have a cause.

Prof. Frank Benton: Merely as a comment on that statement in regard to the origin of disease I would say the German bee-keepers have for a long time had a strong prejudice against

our American hives. Their hives are an upright cupboard shaped affair and they remove the combs from the rear only. That leaves the top covered during the time of manipulation. That hive has been largely adopted in Italy also; and one of their main arguments against our hive was that the opening of the top permitted the escape of the heat—in a great part of Germany it is quite cool in the summer—and they said the brood got chilled with the result that foul brood got in from this chilled brood. While I was in Germany I combated that idea. I will also add that some bees are far more energetic in clearing out dead brood in hives than others. Cyprian bees excel in that particular. Black bees are less inclined in that respect, and that is one reason that they sooner get diseased—they are not so disease proof.

Question—Do Golden Italian bees winter well or as well as other varieties? And how do Golden Italians compare with other varieties in the production either of comb or extracted honey?

Prof. Frank Benton: There are various strains of Golden Italians and it depends on how the strain is obtained, whether it has been simply by selecting from a weak strain of Italians. If it is then they will not winter so well, and will not produce honey so well. But if they have been selected from good strains of Italians they will winter just as well as any bees. If they have been produced by an admixture of the yellower blood still they are good, and are bees that will store honey better than many of the Golden Italians and will winter as well as any.

I never heard but Golden bees were good winterers until GLEANINGS sprung the question the present season.

Yes, the Golden Italians are fine honey gatherers. In fact, I think they put more workers into the fields in proportion to their strength than any other race or strain. The chief objection to them is that the queens are poorer layers than other strains of Italians, the colony consequently becoming weak and not maintaining the proper field force.

Mr. France: The next two questions are by Dr. Perry of Kansas in the subject of plurality of queens. They have been answered.

Question is pertaining to the advisability of two bee-keepers going into partnership. Is it desirable? It was suggested by our President, Mr. Aspinwall, who, owing to his rheumatic condition, was unable to take care of his bees part of the time and he wished he had a partner that could further the work. Would it be advisable?

Mr. Klinger: I think it depends entirely on the partner.

Mr. Moe: If you want things done to suit yourself, do them yourself. If you have got to depend on some one else, it all depends on who you get.

Mr. Moe: If there is nothing else, in order to enable us to take advantage of Prof. Surface's offer to take us through the remaining part of the building, I move that we do now adjourn.

The Vice President (Mr. Hilton) put the motion that this Convention do now adjourn permanently, or until the next regular meeting, which, on a vote having been taken, was declared carried, and the Convention adjourned at 3:20 p. m.

WHAT DOES THE CONSUMER DEMAND OF THE DEALER?

Answered by S. A. Niver of Wis.

"My first guess was **good honey at reasonable price;** but that answer seems to lack something. Who is the consumer that is demanding? Is it the baker, the manufacturer or the housewife? So the latter is the only one I am "drumming" at present, it may be well to confine my remarks to that class. Does she demand "comb," "extracted," or "chunk" honey? That will depend on locality. In the north "chunk honey" won't do. Honey will granulate so quickly that it isn't practical to handle chunk honey. As to comb honey, the housewife demands so much for so little that in connection with high price of our supplies and labor, it makes the outlook for comb honey not encouraging. Advancing price cuts down consumption. For remember, honey is considered a luxury and not a necessity. The old advice to rise an hour earlier and scrape, sandpaper and polish sections to get a higher price, but the net result is to cheapen the price of his neighbor's honey who has not taken the extra time to get his honey up to the mark instead of advancing his own. If the price goes up to paying basis it is above the purse of wage earner, who is the main stay

of business. He consumes the most. Rich people do not eat honey to an extent sufficient to make any special effort to please them remunerative. I am forced to conclude the quicker the bee-keepers quit the bothering business of comb honey production and devote their energies to producing, advertising and distributing extracted honey the more satisfaction will be found in the business. To test the comparative demand, I asked my partner to keep tally of the first 50 families he canvassed and note the number who used comb honey exclusively, those who used extracted honey, and those who used neither. The same number was noted by myself, and total results as follows: Two out of 100 used comb honey only; 20 used no honey; 78 were consumers of extracted honey. To make the "straw ballot" fair, we selected localities of wage earners and brown stone fronts, the avenues and the alleys of cities. The grocer has been advising his customers to buy comb honey because **that** he could recommend as pure. That sort of talk has failed to check the growing popularity of extracted honey as a cheap and wholesome food. The explanation is in one word, **price.** Extracted honey sells for about half the price of comb. Can be produced and distributed for half its present price **to the consumer** if we eliminate all unnecessary expenses, gain the confidence of consumer by seeing to it the pure food law is respected; also keeping everlastingly at it disseminating the truth about the benefits and advantages of using extracted honey as a food for economy and health, then bee-keeping as a business will be the gainer.

S. A. NIVER,
Whitewater, Wis.

TABLE OF CONTENTS.